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# 1987

# Census of

# Manufactures

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MC87-I-35G

## INDUSTRY SERIES

### Service Industry Machines

Industries 3581, 3582, 3585, 3586, and 3589



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The overall planning and review of the census operations were performed by the staff of the Office of the Assistant Director for Economic and Agriculture Censuses.

This report was prepared in the Industry Division. **John Govoni**, Assistant Chief for Census/ASM Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen**, Chief, Census/ASM Durable Branch, assisted by **Charles T. Lee, Jr.**, Section Chief, with primary data analysis responsibilities performed by **JoAnna T.Q. Nguyen**.

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If you have any questions concerning the statistics in this report, call (301) 763-7304.

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# INTRODUCTION

## PURPOSE AND USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source of facts about the structure and functioning of the Nation's economy. They provide essential information for government, business, industry, and the general public.

*Economic censuses furnish an important part of the framework for such composite measures as the gross national product, input-output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.*

*Policy-making agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.*

*State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.*

*Trade associations study trends in their own and competing industries, and keep their members informed of market changes.*

*Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.*

## AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic censuses every 5 years, covering years ending in 2 and 7. The 1987 Economic Censuses consist of the

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Transportation
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1987 Census of Agriculture and 1987 Census of Governments are conducted separately.) The next economic censuses are scheduled to be taken in 1993 covering the year 1992.

## AVAILABILITY OF THE DATA

The results of each of the economic censuses are available in printed reports, for sale by the U.S. Government Printing Office, and on microfiche, computer tape, compact discs with read-only memory, and flexible diskettes, for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Census Bureau, Washington, DC 20233. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State Data Centers in every State and Business and Industry Data Centers in many States also supply economic census statistics.

## WHAT'S NEW IN 1987

Several changes have taken place for the 1987 censuses. Data will be reported on the basis of the newly revised Standard Industrial Classification (SIC) system with selected reports including "bridge tables," linking the old and new classification systems. A new set of metropolitan areas has been adopted, and more detailed information will be available for businesses with no paid employees. For additional information on these changes, review the subsequent text.

## HISTORICAL INFORMATION

The economic censuses have been taken together as an integrated program at 5-year intervals since 1967, and before that for 1963, 1958, and 1954. Prior to that time, the individual censuses were taken separately at varying intervals.

The economic censuses trace their beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial

activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 manufactures census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade, and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 economic censuses were the first to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. These were the first censuses to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records have also been used to provide basic statistics as well for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic censuses, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The Census of Construction Industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The Census of Transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks. New for 1987 are publications reporting on business establishments engaged in several transportation industries, paralleling the data on establishments in other sectors. This is part of a gradual expansion in coverage of industries previously subjected to government regulation. The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic censuses in 1972 along with the Survey of Women-Owned Businesses.

Economic censuses have also been taken in Puerto Rico since 1909, in the Virgin Islands and Guam since 1958, and in the Northern Mariana Islands since 1982.

Statistical reports from the 1982 and earlier censuses provide historical figures for the study of long-term time series, and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

## AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the censuses provide complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, the results of which appear in publication series such as *Current Business Reports* (retail and wholesale trade and service industries), the *Annual Survey of Manufactures*, *Current Industrial Reports*, and the *Quarterly Financial Report*. Most of these surveys, while providing more frequent

observations, yield less kind-of-business and geographic detail than the censuses. The *County Business Patterns* program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

## SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1987 Economic Censuses and Related Statistics*. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1987 Economic Censuses*. Contact Customer Services for information on availability.

## CENSUS OF MANUFACTURES

### General

This report, from the 1987 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as type of organization, distribution of sales by class of customer, concentration ratios and water use in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan statistical areas (MSA's), counties, and places. Selected statistical totals for "all manufacturing" have been shown in the State reports for MSA's with 250 employees or more and for counties and places with 450 employees or more.

The *General Summary* report will contain industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

### Scope of Census and Definition of Manufacturing

The 1987 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial*

*Classification (SIC) Manual*<sup>1</sup>. This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

## Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 56,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

## Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in

distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1987, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

## Manufacturing Universe and Census Report Forms

The 1987 Census of Manufactures universe includes approximately 350,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

### 1. Small Single-Establishment Companies Not Sent a Report Form

In the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than five employees were excused, while all establishments with more than 20 employees were mailed forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials

<sup>1</sup>Standard Industrial Classification Manual: 1987: For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, Stock No. 041-001-00314-2.

were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative-record cases were only given a two- or three-digit SIC group. For the 1987 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

## 2. Establishments Sent a Report Form

The 200,000 establishments covered in the mail canvass were divided into three groups:

a. **ASM sample establishments**—This group consisted of approximately 56,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM)**—Approximately 84,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM)**—This group consisted of approximately 60,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested

summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

## Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1987 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

## Industry Classification of Establishments

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1987, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/77 and a reduction of three-digit groups from 143 in 1972/77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures).

However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all

carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

## Value of Shipments for the Industry Compared With Value of Product Shipments

This report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

## CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed. However, the suppressed data are included in higher-level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

## SPECIAL TABULATIONS

Special tabulations of data collected in the 1987 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential

information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, DC 20233.

## ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (NC) Not comparable.
- (S) Withheld because estimate did not meet publication standards.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- do Ditto.

n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and tons, are used in the customary sense.

## CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census/ASM		
Durables	Kenneth Hansen	(301) 763-7304
Nondurables	Michael Zampogna	(301) 763-2510
Current Industrial Reports		
Durables	Malcolm Bernhardt	(301) 763-2518
Nondurables	Thomas Flood	(301) 763-5911
Import/Export Publications		
Industry Analysis and Forecasts	Foreign Trade Division	(301) 763-5140
	International Trade Administration	(202) 377-4356

# Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operat-ing ratios	By geo-graphic area	Sum-mary and supple-mental	By employ-ment size	By industry and product class special-ization	Materials con-sumed by kind	Industry-product analysis	Product ship-ments	Product class by geo-graphic area	Historical product class
Number of companies .....	1a			3a					*6a		
Number of establishments....	1a			2	3a	4	5a				
Employment and payroll:....											
Number of employees .....	1a	1b	2	3a	4	5a					
Payroll .....	1a	1b	2	3a	4	5a					
Supplemental labor costs .....				3a							
Production workers.....	1a	1b	2	3a	4	5a					
Production- worker hours....	1a	1b	2	3a	4	5a					
Production- worker wages....	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit) .....	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digits) .....									6a	6b	6c
Product shipments (seven-digit) .....									6a		
Value added by manufacture .....	1a	1b	2	3a	4	5a					
Cost of materials.....	1a	1b	2	3a	4	5a					
Fuels and electric energy .....				3a							
Materials consumed by kind .....				3a				7			
Inventories:											
Total, end of year .....	1a			3a	4						
By stage of fabrication.....				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures....	1a		2	3b	4	5a					
Used plant and equipment expenditures.....				3b							
Gross assets .....				3b							
Depreciation .....				3b							
Retirements of buildings and machinery .....				3b							
Rental payments.....				3b							
Foreign content of materials consumed .....				3c							
Purchased services.....				3c							
Ratios:											
Specialization.....	1a			3a				5b			
Coverage.....	1a			3a				5b			

\*Number of companies with shipments of more than \$100 thousand.

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## Service Industry Machines

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# DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

This report shows 1987 Census of Manufactures statistics for establishments classified in each of the following industries:

<b>SIC code and title</b>	
3581	Automatic Vending Machines
3582	Commercial Laundry Equipment
3585	Refrigeration and Heating Equipment
3586	Measuring and Dispensing Pumps
3589	Service Industry Machinery, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account when comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-establishment companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other Federal agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions included in the 1987 Standard Industrial Classification (SIC) Manual<sup>1</sup>. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The

product class and product code comparability between the 1987 and 1982 censuses is shown in the appendixes. These appendixes present, in tabular form, the linkage from 1987 to 1982.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

## INDUSTRY 3581, AUTOMATIC VENDING MACHINES

This industry is made up of establishments primarily engaged in manufacturing automatic vending machines and coin-operated mechanisms for such machines. Products of this industry also are collected in the Current Industrial Report MA-35U, Vending Machines (Coin-Operated).

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system.

In the 1987 Census of Manufactures, Industry 3581, Automatic Vending Machines, had employment of 7.9 thousand. The employment figure was 7 percent above the 7.4 thousand reported in 1982. The leading States in employment in 1987 were Missouri, West Virginia, California, and Pennsylvania. This represents a shift from 1982 when Missouri, California, Tennessee, and New Jersey were the leading States.

The total value of shipments for establishments classified in this industry was \$714.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3581 shipped \$685.6 million of automatic vending machines products considered primary to the industry, \$18.2 million of secondary products, and had \$10.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio). In 1982, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 98 percent. The products primary to industry 3581, no matter in what industry they

<sup>1</sup>Standard Industrial Classification Manual: 1987. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

were produced, appear in table 6a and aggregate to \$695.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the automatic vending machines industry amounted to \$372.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of total value of shipments.

## INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing laundry and dry-cleaning equipment and pressing machines for commercial and industrial use. Establishments primarily engaged in manufacturing household laundry equipment, including coin-operated washers and dryers, are classified in industry 3633.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 3582, Commercial Laundry Equipment, had employment of 4.6 thousand. The employment figure was 2 percent below the 4.7 thousand reported in 1982. The leading States in employment in 1987 were Ohio, Louisiana, Kentucky, and Florida. This represents a shift from 1982 when Ohio, Texas, Kentucky, and Louisiana were the leading States.

The total value of shipments for establishments classified in this industry was \$457.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3582 shipped \$409.1 million of commercial laundry equipment products considered primary to the industry, \$17.1 million of secondary products, and had \$30.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 96 percent (specialization ratio). In 1982, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 87 percent. The products primary to industry 3582, no matter in what industry they

were produced, appear in table 6a and aggregate to \$433.3 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the commercial laundry equipment industry amounted to \$213.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of total value of shipments.

## INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing refrigeration equipment and systems and similar equipment for commercial and industrial use; complete air-conditioning units for domestic, commercial, and industrial use; and warm air furnaces. Establishments primarily engaged in manufacturing soda fountains and beer dispensing equipment and humidifiers and dehumidifiers, except portable, are also classified in this industry. Establishments primarily engaged in manufacturing household refrigerators and home and farm freezers are classified in industry 3632, and those manufacturing electric air space heaters and portable humidifiers and dehumidifiers are classified in industry 3634. Products of this industry also are collected in the Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment.

The 1987 definition of this industry has been revised from that used in the 1972 Standard Industrial Classification (SIC) manual. However, the SIC number and title are unchanged. 1972 SIC-based product codes 36993 00, Electric Comfort Heating Equipment, and 36994 07, Parts for Electric Comfort Heating Equipment, are now included in product codes 3585C 00 and 3585C 80 shown in table 6a-1 of this report.

In the 1987 Census of Manufactures, Industry 3585, Refrigeration and Heating Equipment, had employment of 133.3 thousand. The employment figure was 11 percent above the 120.5 thousand reported in 1982. Compared with 1986, employment increased 3 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were New York, Texas, Ohio, and Tennessee. These same States were the leaders in 1982.

The total value of shipments for establishments classified in this industry was \$17.0 billion..

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3585 shipped \$14.9 billion of refrigeration and heating equipment products considered primary to the industry, \$1.1 billion of secondary products, and had \$976.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 93 percent (specialization ratio). In 1982, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 96 percent. The products primary to industry 3585 no matter in what industry they were produced, appear in table 6a and aggregate to \$15.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the refrigeration and heating equipment industry amounted to \$9.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

## **INDUSTRY 3586, MEASURING AND DISPENSING PUMPS**

This industry is made up of establishments primarily engaged in manufacturing measuring and dispensing pumps commonly used in service stations for dispensing gasoline, oil, and grease, including grease guns. Establishments primarily engaged in manufacturing pumps and pumping equipment for general industrial use are classified in industry group 356.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 3586, Measuring and Dispensing Pumps, had employment of 9.4 thousand. The employment figure was 16 percent above the 8.1 thousand reported in 1982. Compared with 1986, employment increased 29 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Indiana, North Carolina, Missouri, and Maryland. This represents a shift from 1982 when North Carolina, Ohio, Indiana, and Illinois were the leading States.

The total value of shipments for establishments classified in this industry was \$1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3586 shipped \$881.2 million of measuring and dispensing pumps products considered primary to the industry, \$145.3 million of secondary products, and had \$42.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 86 percent (specialization ratio). In 1982, the specialization ratio also was 86 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 93 percent. The products primary to industry 3586, no matter in what industry they were produced, appear in table 6a and aggregate to \$916.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the measuring and dispensing pumps industry amounted to \$470.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of total value of shipments.

## **INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.**

This industry is made up of establishments primarily engaged in manufacturing machines and equipment, not elsewhere classified, for use in service industries, such as floor sanding machines, industrial vacuum cleaners, scrubbing machines, commercial cooking and food warming equipment, and commercial dishwashing machines. Establishments primarily engaged in manufacturing household electrical appliances are classified in industry group 363.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 3589, Service Industry Machinery, N.E.C., had employment of 35.2 thousand. The employment figure was 14 percent above the 31.0 thousand reported in 1982. Compared with 1986, employment increased 11 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year

between censuses. The leading States in employment in 1987 were Illinois, California, Minnesota, and Ohio. These same States were the leaders in 1982.

The total value of shipments for establishments classified in this industry was \$4.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3589 shipped \$3.5 billion of service industry machinery, n.e.c., products considered primary to the industry, \$203.9 million of secondary products, and had \$241.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 95 percent (specialization ratio). In 1982, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio).

In 1982, the coverage ratio was 88 percent. The products primary to industry 3589, no matter in what industry they were produced, appear in table 6a and aggregate to \$3.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the service industry machinery, n.e.c., industry amounted to \$1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1987 and Earlier Years

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Year <sup>1</sup>	Com- pan- ies <sup>2</sup> (no.)	All establish- ments <sup>3</sup>		All employees		Production workers			Value added by manufac- ture <sup>4</sup> (million dollars)	Cost of materials <sup>5</sup> (million dollars)	Value of shipments (million dollars)	New capital expend- itures <sup>6</sup> (million dollars)	Ratios		
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					Speci- ciali- zation <sup>7</sup> (per- cent)	Cover- age <sup>8</sup> (per- cent)	
<b>INDUSTRY 3581, AUTOMATIC VENDING MACHINES</b>															
1987 Census	97	98	33	7.9	185.6	5.7	11.1	108.7	344.0	372.7	714.6	25.9	158.6	97	99
1986 ASM	(NA)	(NA)	(NA)	8.0	176.6	5.6	10.7	98.7	306.3	363.1	668.6	27.0	157.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.1	163.4	5.9	11.4	103.6	306.2	372.5	664.8	13.4	158.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.3	156.8	6.0	11.6	103.4	279.3	349.8	611.3	923.5	156.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.5	132.9	5.1	9.8	72.4	257.1	345.0	596.0	925.3	136.7	(NA)	(NA)
1982 Census	88	92	36	7.4	123.3	5.1	9.8	72.3	215.0	267.1	479.4	13.1	118.2	93	98
1981 ASM	(NA)	(NA)	(NA)	8.7	137.5	6.0	11.8	83.9	253.6	315.6	576.4	912.7	120.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.9	127.3	6.3	12.0	77.4	211.2	294.8	501.3	916.8	127.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.2	123.0	6.8	13.2	78.4	226.6	281.3	504.7	913.1	120.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.4	116.0	6.9	13.4	73.0	222.3	258.6	482.6	98.8	114.6	(NA)	(NA)
1977 Census	106	113	35	8.8	103.2	6.4	12.4	65.1	211.7	214.5	410.1	7.9	109.6	94	93
1976 ASM	(NA)	(NA)	(NA)	8.2	88.9	5.8	10.8	54.0	155.7	184.7	337.6	7.3	96.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	7.1	66.1	4.4	8.1	35.3	107.4	144.1	264.3	7.0	86.9	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	10.5	93.5	7.4	13.9	57.1	188.1	190.2	370.7	8.9	124.4	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	10.7	89.7	8.1	15.1	58.8	169.0	154.2	325.2	9.3	97.2	(NA)	(NA)
1972 Census	116	125	48	10.5	83.6	7.3	13.9	52.1	183.4	152.3	324.4	5.6	89.0	94	96
<b>INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT</b>															
1987 Census	81	82	41	4.6	107.4	3.4	7.0	66.7	247.5	213.0	457.0	6.6	84.8	96	94
1986 ASM <sup>10</sup>	(NA)	(NA)	(NA)	4.5	100.2	3.1	6.6	59.8	196.0	184.5	381.6	6.9	76.6	(NA)	(NA)
1985 ASM <sup>10</sup>	(NA)	(NA)	(NA)	4.5	92.9	3.1	6.5	55.8	193.3	186.1	373.5	6.8	72.1	(NA)	(NA)
1984 ASM <sup>10</sup>	(NA)	(NA)	(NA)	4.4	89.5	3.1	6.5	55.4	191.5	159.1	346.0	9.3	72.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.5	85.6	3.1	6.5	52.8	177.5	160.0	338.5	9.6	69.2	(NA)	(NA)
1982 Census	86	87	45	4.7	83.0	3.2	6.4	49.6	170.0	147.8	321.0	4.9	64.1	96	87
1981 ASM	(NA)	(NA)	(NA)	4.8	76.3	3.6	7.3	50.6	154.7	159.3	308.5	9.3	57.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.1	72.8	3.9	7.5	46.0	134.5	163.1	295.2	8.3	56.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.6	74.9	4.2	8.4	49.2	126.3	173.5	293.6	9.10.7	53.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.2	66.3	3.9	7.4	41.7	126.5	128.1	247.9	9.3.8	61.6	(NA)	(NA)
1977 Census	90	94	38	4.6	54.4	3.3	6.4	35.6	117.3	104.9	220.3	2.2	53.5	90	81
1976 ASM	(NA)	(NA)	(NA)	3.4	40.9	2.4	5.2	27.2	92.5	84.2	178.6	1.5	51.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	3.4	36.1	2.3	4.6	22.9	83.8	71.8	160.5	1.3	48.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	4.5	46.3	3.3	7.2	30.7	92.1	89.5	172.1	4.6	63.1	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	5.1	44.4	3.5	7.1	26.5	101.6	89.3	188.5	1.3	45.6	(NA)	(NA)
1972 Census	100	107	47	4.8	42.2	3.4	6.7	25.4	88.2	68.9	157.0	1.2	36.6	91	70
<b>INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT<sup>11</sup></b>															
1987 Census	736	892	511	133.3	3 355.1	96.4	192.8	2 169.8	8 051.9	9 128.8	17 026.9	432.3	2 578.6	93	97
1986 ASM	(NA)	(NA)	(NA)	128.9	3 194.5	91.8	181.3	2 067.2	7 212.6	8 484.8	15 826.2	493.1	2 204.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	130.4	3 102.3	94.2	183.3	2 021.0	7 249.5	8 608.2	15 836.4	436.5	2 359.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	134.2	3 021.0	97.7	189.6	1 982.6	7 409.1	8 576.8	15 775.5	418.9	2 434.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	122.1	2 565.0	88.5	167.3	1 679.5	6 373.1	6 966.7	13 375.2	225.6	2 209.6	(NA)	(NA)
1982 Census	730	865	496	120.5	2 393.2	85.0	159.3	1 532.6	6 049.4	6 190.6	12 390.3	329.3	2 141.9	92	96
1981 ASM	(NA)	(NA)	(NA)	137.0	2 532.2	98.7	192.7	1 639.4	6 210.4	7 012.0	13 125.7	400.6	2 038.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	130.0	2 240.6	93.6	182.9	1 442.5	5 383.9	6 023.9	11 587.4	367.0	1 860.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	148.8	2 323.8	111.5	216.8	1 575.4	5 857.7	6 596.2	12 273.1	297.4	2 101.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	148.5	2 154.4	112.9	214.3	1 476.7	5 323.6	6 051.0	11 217.0	292.9	1 882.2	(NA)	(NA)
1977 Census	725	860	457	138.6	1 849.7	104.4	205.4	1 270.2	4 469.2	5 235.7	9 638.1	233.0	1 632.7	89	95
1976 ASM	(NA)	(NA)	(NA)	131.3	1 653.1	97.3	189.7	1 106.2	4 097.2	4 589.7	8 572.4	144.3	1 533.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	118.5	1 359.6	84.1	158.8	859.4	2 999.3	3 554.8	6 765.9	154.5	1 350.7	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	156.8	1 637.5	116.8	223.7	1 089.7	3 727.0	4 371.9	7 972.6	227.0	1 794.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	165.2	1 646.4	122.8	241.8	1 105.2	3 896.0	4 338.7	8 089.2	213.4	1 621.7	(NA)	(NA)
1972 Census	655	774	443	150.8	1 442.1	112.6	223.5	978.6	3 517.4	3 714.9	7 083.5	201.2	1 330.6	84	90
<b>INDUSTRY 3586, MEASURING AND DISPENSING PUMPS</b>															
1987 Census	70	83	44	9.4	249.0	5.8	12.0	132.8	617.8	470.3	1 068.7	24.4	213.9	86	96
1986 ASM	(NA)	(NA)	(NA)	7.3	172.8	4.7	9.1	91.1	392.8	413.5	813.1	16.4	151.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.2	185.1	5.3	10.2	97.0	417.9	423.7	840.3	21.3	181.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.4	182.3	5.6	11.0	103.4	465.7	396.2	858.8	13.1	197.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.4	157.6	4.7	8.7	80.1	364.3	292.1	668.2	13.1	154.5	(NA)	(NA)
1982 Census	58	61	35	8.1	160.0	5.2	9.9	86.9	365.1	299.7	676.2	12.8	157.2	86	93
1981 ASM	(NA)	(NA)	(NA)	6.4	114.6	4.5	8.6	69.1	324.3	223.7	549.0	11.5	121.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.2	122.2	5.1	9.7	74.2	338.3	227.6	539.5	16.6	123.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.9	106.7	4.8	9.2	64.3	259.2	198.6	448.6	9.9	105.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.7	95.6	4.7	8.8	57.4	222.3	174.2	392.1	9.0	91.8	(NA)	(NA)
1977 Census	57	59	30	7.4	97.3	5.1	9.7	57.9	218.0	158.2	375.7	6.2	97.9	61	82
1976 ASM	(NA)	(NA)	(NA)	7.4	89.6	5.2	10.1	53.7	220.3	135.1	347.6	7.4	92.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	7.5	85.5	5.2	10.1	50.4	198.2	132.2	330.9	7.1	88.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	7.7	79.3	5.6	10.6	50.4	176.4	128.1	297.4	5.2	88.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	7.0	68.1	4.8	9.6	41.9	130.7	94.5	222.2	4.2	69.5	(NA)	(NA)
1972 Census	54	57	33	7.2	67.3	5.0	9.9	38.7	134.1	101.1	232.3	4.5	64.2	71	87
<b>INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.</b>															
1987 Census	895	949	333	35.2	854.8	21.5	43.3	399.0	2 200.5	1 765.5	3 960.4	88.9	717.4	95	90
1986 ASM	(NA)	(NA)	(NA)	31.7	736.4	19.1	36.5	345.5	1 815.4	1 611.7	3 428.3	58.0	630.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.6	694.5	19.5	37.9	337.4	1 669.2	1 568.6	3 214.7	65.0	613.3		

Table 1a. **Historical Statistics for the Industry: 1987 and Earlier Years—Con.**

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year <sup>1</sup>	Com- panies <sup>2</sup> (no.)	All establishments <sup>3</sup>		All employees		Production workers			Value added by manufac- ture <sup>4</sup> (million dollars)	Cost of materials <sup>5</sup> (million dollars)	Value of shipments (million dollars)	New capital expendi- tures <sup>6</sup> (million dollars)	End-of- year inven- tories <sup>4</sup> (million dollars)	Ratios	
		Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Speciali- zation <sup>7</sup> (per- cent)	Cover- age <sup>8</sup> (per- cent)
<b>INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.—Con.</b>															
1977 Census	959	988	277	32.1	411.8	19.2	36.9	208.6	946.4	849.3	1 771.8	38.5	365.9	91	90
1976 ASM	(NA)	(NA)	(NA)	22.5	279.1	14.0	27.0	142.3	648.1	593.6	1 224.0	22.7	254.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	21.2	243.3	12.7	23.8	120.8	504.0	522.7	1 045.3	16.8	210.4	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	22.1	235.5	14.0	27.0	122.6	531.7	476.3	993.6	27.9	230.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	25.0	249.5	15.2	30.5	129.5	548.5	468.2	993.5	17.8	213.6	(NA)	(NA)
1972 Census	666	706	232	24.4	228.8	15.0	29.3	115.9	503.6	422.8	913.8	15.7	184.4	90	87

<sup>1</sup>In annual survey of manufacturers (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter.

<sup>2</sup>For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during year.

<sup>4</sup>Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufacturers in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacturer are not comparable to prior-year data.

<sup>5</sup>Detailed data on materials consumed by type are shown in table 7.

<sup>6</sup>Detailed data on new machinery and equipment expenditures are provided in table 3c.

<sup>7</sup>Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

<sup>8</sup>Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

<sup>9</sup>Estimates for new capital expenditures have associated standard errors of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

<sup>10</sup>Data either have associated standard errors exceeding 15 percent or are not consistent with other census series and related data; thus these estimates may be of limited reliability.

<sup>11</sup>Industry definition is new for 1987 Census of Manufactures. An explanation of the Standard Industrial Classification revision appears in the Summary of Findings of this report.

Table 1b. **Selected Operating Ratios for the Industry: 1987 and Earlier Years**

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
<b>INDUSTRY 3581, AUTOMATIC VENDING MACHINES</b>									
1987 Census	23 494	72	1 947	9.79	52	78	43 544	54	30.99
1986 ASM	22 075	70	1 911	9.22	54	81	38 288	58	28.63
1985 ASM	20 172	73	1 932	9.09	56	81	37 802	53	26.86
1984 ASM	18 891	72	1 933	8.91	57	83	33 651	56	24.08
1983 ASM	17 720	68	1 922	7.39	58	80	34 280	52	26.23
1982 Census	16 662	69	1 922	7.38	56	81	29 054	57	21.94
1981 ASM	15 804	69	1 967	7.11	55	79	29 149	54	21.49
1980 ASM	14 303	71	1 905	6.45	59	84	23 730	60	17.60
1979 ASM	13 369	74	1 941	5.94	56	80	24 630	54	17.17
1978 ASM	12 340	73	1 942	5.45	54	78	23 649	52	16.59
1977 Census	11 727	73	1 938	5.25	52	77	24 057	49	17.07
1976 ASM	10 841	71	1 862	5.00	55	81	18 988	57	14.42
1975 ASM	9 309	62	1 841	4.36	55	80	15 127	62	13.26
1974 ASM	8 904	70	1 878	4.11	51	77	17 914	50	13.53
1973 ASM	8 383	76	1 864	3.89	47	75	15 794	53	11.19
1972 Census	7 961	70	1 904	3.75	47	73	17 467	46	13.19
<b>INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT</b>									
1987 Census	23 348	74	2 059	9.53	47	70	53 804	43	35.36
1986 ASM	22 266	69	2 129	9.06	48	75	43 556	51	29.70
1985 ASM	20 644	69	2 097	8.58	50	75	42 956	48	29.74
1984 ASM	20 340	70	2 097	8.52	46	72	43 523	47	29.46
1983 ASM	19 022	69	2 097	8.12	47	73	39 444	48	27.31
1982 Census	17 659	68	2 000	7.75	46	72	36 170	49	26.56
1981 ASM	15 895	75	2 028	6.93	52	76	32 229	49	21.19
1980 ASM	14 274	76	1 923	6.13	55	80	26 373	54	17.93
1979 ASM	13 375	75	2 000	5.86	59	85	22 554	59	15.04
1978 ASM	12 750	75	1 897	5.64	52	78	24 327	52	17.09
1977 Census	11 826	72	1 939	5.56	48	72	25 500	46	18.33
1976 ASM	12 029	71	2 167	5.23	47	70	27 206	44	17.79
1975 ASM	10 617	68	2 000	4.98	45	67	24 647	43	18.22
1974 ASM	10 288	73	2 182	4.26	52	79	20 467	50	12.79
1973 ASM	8 705	69	2 029	3.73	47	71	19 922	44	14.31
1972 Census	8 791	71	1 971	3.79	44	71	18 375	48	13.16

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1987 and Earlier Years—Con.

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker (dollars)
<b>INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT</b>									
1987 Census-----	25 170	72	2 000	11.25	54	73	60 404	42	41.76
1986 ASM-----	24 782	71	1 975	11.40	54	74	55 955	44	39.78
1985 ASM-----	23 790	72	1 946	11.03	54	74	55 594	43	39.55
1984 ASM-----	22 511	73	1 941	10.46	54	74	55 209	41	39.08
1983 ASM-----	21 007	72	1 890	10.04	52	71	52 196	40	38.09
1982 Census-----	19 860	71	1 874	9.62	50	69	50 202	40	37.97
1981 ASM-----	18 483	72	1 952	8.51	53	73	45 331	41	32.23
1980 ASM-----	17 235	72	1 954	7.89	52	71	41 415	42	29.44
1979 ASM-----	15 616	75	1 944	7.27	54	73	39 366	40	27.02
1978 ASM-----	14 507	76	1 898	6.89	54	73	35 849	40	24.84
1977 Census-----	13 345	75	1 967	6.18	54	74	32 245	41	21.76
1976 ASM-----	12 590	74	1 950	5.83	54	73	31 205	40	21.60
1975 ASM-----	11 473	71	1 888	5.41	53	73	25 311	45	18.89
1974 ASM-----	10 443	74	1 915	4.87	55	75	23 769	44	16.66
1973 ASM-----	9 966	74	1 969	4.57	54	74	23 584	42	16.11
1972 Census-----	9 562	75	1 985	4.38	52	73	23 325	41	15.74
<b>INDUSTRY 3586, MEASURING AND DISPENSING PUMPS</b>									
1987 Census-----	26 489	62	2 069	11.07	44	67	65 723	40	51.48
1986 ASM-----	23 671	64	1 936	10.01	51	72	53 808	44	43.16
1985 ASM-----	22 573	65	1 925	9.51	50	72	50 963	44	40.97
1984 ASM-----	21 702	67	1 964	9.40	46	67	55 440	39	42.34
1983 ASM-----	21 297	64	1 851	9.21	44	67	49 230	43	41.87
1982 Census-----	19 753	64	1 904	8.78	44	68	45 074	44	36.88
1981 ASM-----	17 906	70	1 911	8.03	41	62	50 672	35	37.71
1980 ASM-----	16 972	71	1 902	7.65	42	65	46 986	36	34.88
1979 ASM-----	15 463	70	1 917	6.99	44	68	37 565	41	28.17
1978 ASM-----	14 268	70	1 872	6.52	44	69	33 179	43	25.26
1977 Census-----	13 148	69	1 902	5.97	42	68	29 459	45	22.47
1976 ASM-----	12 108	70	1 942	5.32	39	65	29 770	41	21.81
1975 ASM-----	11 400	69	1 942	4.99	40	66	26 427	43	19.62
1974 ASM-----	10 298	73	1 893	4.75	43	70	22 909	45	16.64
1973 ASM-----	9 728	69	2 000	4.36	43	73	18 671	52	13.61
1972 Census-----	9 347	69	1 980	3.91	44	72	18 625	50	13.55
<b>INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.</b>									
1987 Census-----	24 284	61	2 014	9.21	45	66	62 514	39	50.82
1986 ASM-----	23 230	60	1 911	9.47	47	68	57 268	41	49.74
1985 ASM-----	21 977	62	1 944	8.90	49	70	52 823	42	44.04
1984 ASM-----	21 488	62	1 964	8.82	48	70	50 397	43	41.67
1983 ASM-----	19 327	59	1 877	8.55	48	71	42 839	45	38.89
1982 Census-----	18 838	57	1 882	8.45	48	70	42 623	44	39.44
1981 ASM-----	17 455	63	1 881	7.54	49	72	38 844	45	32.88
1980 ASM-----	15 732	63	1 919	6.64	49	71	35 390	44	29.16
1979 ASM-----	14 107	62	1 941	5.99	49	72	31 726	44	26.18
1978 ASM-----	13 626	60	1 939	5.84	49	71	30 841	44	26.54
1977 Census-----	12 828	60	1 922	5.65	48	71	29 483	44	25.65
1976 ASM-----	12 404	62	1 929	5.27	48	71	28 804	43	24.00
1975 ASM-----	11 476	60	1 874	5.08	50	73	23 774	48	21.18
1974 ASM-----	10 656	63	1 929	4.54	48	72	24 059	44	19.69
1973 ASM-----	9 980	61	2 007	4.25	47	72	21 940	45	17.98
1972 Census-----	9 377	61	1 953	3.96	46	71	20 639	45	17.19

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1987 and 1982

[Excludes data for auxiliaries. States with 150 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1987								1982		
	All establishments		All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
	Total (no.)	With 20 employees or more (no.)	Number <sup>2</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
<b>INDUSTRY 3581, AUTOMATIC VENDING MACHINES</b>											
United States -----	-	98	33	7.9	185.6	5.7	11.1	108.7	344.0	372.7	714.6
Arkansas-----	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	BB
California-----	E1	17	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	EE
Illinois-----	E1	14	7	.5	9.8	.3	6	4.9	16.3	20.5	36.4
Iowa-----	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	AA
Minnesota-----	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	AA

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1987 and 1982—Con.

[Excludes data for auxiliaries. States with 150 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1987											1982		
	All establishments		All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>2</sup> (1,000)	Value added by manufacture (million dollars)	
	E <sup>1</sup>	Total (no.)	With 20 employees or more (no.)	Number <sup>2</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)							
<b>INDUSTRY 3581, AUTOMATIC VENDING MACHINES—Con.</b>														
Missouri	-	6	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)	
New Jersey	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
New York	-	8	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)	
Pennsylvania	-	4	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
Tennessee	-	3	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
Texas	-	3	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
West Virginia	-	2	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
<b>INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT</b>														
United States	-	82	41	4.6	107.4	3.4	7.0	66.7	247.5	213.0	457.0	6.6	4.7	170.0
Florida	-	7	6	.5	11.4	.4	.9	7.1	40.0	29.5	69.1	.8	.3	11.3
Illinois	-	11	5	.3	5.9	.2	.4	3.9	15.6	10.1	25.7	(D)	.3	10.4
Iowa	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)	
Kentucky	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
Louisiana	-	2	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
Massachusetts	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)	
New York	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)	
Ohio	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
Tennessee	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)	
Texas	-	4	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)	
<b>INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT</b>														
United States	-	892	511	133.3	3 355.1	96.4	192.8	2 169.8	8 051.9	9 128.8	17 026.9	432.3	120.5	6 049.4
Alabama	-	10	8	2.0	43.7	1.7	3.5	32.4	132.4	172.3	296.2	7.9	EE	(D)
Arizona	-	13	8	1.6	28.4	1.1	2.1	15.9	63.5	51.0	108.0	5.1	1.8	56.2
Arkansas	-	12	8	3.6	90.5	3.0	6.2	64.1	230.0	240.7	479.9	15.0	2.2	82.3
California	-	108	47	5.2	124.7	3.9	8.3	81.7	243.8	401.9	649.0	8.1	3.4	221.1
Colorado	-	4	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)	
Connecticut	-	12	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	43.9
Delaware	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)	
Florida	-	47	18	1.4	25.7	1.0	2.1	15.3	72.8	65.7	135.7	2.2	1.0	31.8
Georgia	-	25	16	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	110.8
Illinois	-	41	22	5.5	131.5	4.0	8.0	82.1	346.2	385.1	721.6	12.1	5.4	225.0
Indiana	-	27	18	5.6	164.5	4.6	9.5	126.8	401.1	521.0	948.2	59.1	4.5	233.7
Iowa	-	7	7	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)	
Kansas	-	7	5	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)	
Kentucky	-	9	8	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.2	279.4	
Maryland	-	12	7	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)	
Massachusetts	-	13	8	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	26.1
Michigan	-	37	19	5.4	128.3	3.7	7.3	78.3	261.8	386.0	608.7	14.0	5.7	190.1
Minnesota	-	25	16	3.3	95.4	1.9	3.4	42.9	207.6	202.3	408.3	(D)	3.4	125.2
Mississippi	-	8	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)	
Missouri	-	23	16	4.7	99.2	3.4	6.2	61.0	187.1	248.1	425.7	15.8	4.3	154.7
Nebraska	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	-	29	19	5.4	127.8	4.0	7.6	87.7	210.5	308.4	504.5	14.1	4.1	170.6
New York	-	69	36	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.0	1 115.9
North Carolina	-	21	12	1.6	35.5	1.2	2.6	21.7	94.7	102.9	196.5	3.2	1.6	56.8
Ohio	-	40	23	12.7	423.8	9.3	19.7	296.8	1 016.4	894.6	1 903.7	(D)	12.7	626.7
Oklahoma	-	13	7	1.5	33.1	1.1	1.9	20.0	83.7	95.3	178.0	2.2	1.1	92.7
Oregon	-	8	3	.2	3.6	.1	.3	1.9	7.2	10.3	17.2	(D)	AA	(D)
Pennsylvania	-	48	31	6.3	160.2	3.7	7.2	82.6	338.6	312.9	649.5	9.6	7.3	356.5
South Carolina	-	8	4	1.3	24.7	1.0	2.1	16.2	74.1	80.7	152.9	(D)	1.0	56.1
South Dakota	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)	
Tennessee	-	29	23	11.4	241.9	9.1	17.5	172.5	841.7	975.7	1 765.6	(D)	FF	(D)
Texas	-	107	64	12.8	288.9	8.6	16.2	162.5	685.0	1 015.1	1 699.1	(D)	9.9	624.7
Virginia	-	11	10	2.6	52.4	1.7	3.4	26.8	126.4	176.0	293.2	8.4	2.3	62.7
Washington	-	9	4	.4	11.6	.2	.6	6.3	22.5	25.0	47.4	.8	.3	12.9
Wisconsin	-	31	17	5.6	147.2	3.1	6.3	71.6	261.1	256.8	518.9	13.8	6.8	241.1
<b>INDUSTRY 3586, MEASURING AND DISPENSING PUMPS</b>														
United States	-	83	44	9.4	249.0	5.8	12.0	132.8	617.8	470.3	1 068.7	24.4	8.1	365.1
California	-	E5	12	6	BB	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)	
Illinois	-	6	4	.7	16.4	.5	1.1	10.9	55.5	39.9	100.6	(D)	CC	(D)
Indiana	-	7	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	
Iowa	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)	
Maryland	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)	

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1987 and 1982—Con.

[Excludes data for auxiliaries. States with 150 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1987										1982	
	All establishments		All employees		Production workers			Value added by manufacture	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	Value added by manufacture (million dollars)
	E <sup>1</sup>	Total (no.)	With 20 employees or more (no.)	Number <sup>2</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
<b>INDUSTRY 3586, MEASURING AND DISPENSING PUMPS—Con.</b>												
Michigan	E2	6	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB (NA) (D)
Missouri	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
North Carolina	-	5	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE (D)
Ohio	E1	5	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC (D)
Pennsylvania	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Tennessee	-	5	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA (D)
Texas	-	6	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB (D)
<b>INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.</b>												
United States	E1	949	333	35.2	854.8	21.5	43.3	399.0	2 200.5	1 765.5	3 960.4	88.9
Alabama	E2	6	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4 (D)
Arizona	E2	20	6	.3	6.3	.2	.3	2.9	19.3	13.5	32.4	.3 (D)
Arkansas	-	10	5	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB (D)
California	E2	167	50	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.1 (D)
Colorado	-	11	3	.2	6.8	.1	.2	1.7	24.5	15.0	38.0	.2 (D)
Connecticut	E3	13	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA (D)
Florida	E3	54	15	1.4	31.1	.9	1.9	15.6	81.9	58.2	138.5	.1 (D)
Georgia	E2	8	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB (D)
Illinois	-	77	38	5.1	131.1	3.0	6.0	55.8	311.9	294.0	606.1	9.5 (D)
Indiana	-	23	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.5 (D)
Iowa	-	9	4	.5	11.7	.2	.4	4.3	31.3	20.1	51.0	.3 (D)
Kentucky	-	7	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC (D)
Louisiana	-	13	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB (D)
Maryland	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB (D)
Massachusetts	E1	18	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9 (D)
Michigan	-	45	16	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5 (D)
Minnesota	-	32	10	2.2	83.4	1.2	2.5	27.5	199.8	100.9	301.7	2.8 (D)
Missouri	E1	30	14	1.1	21.9	.7	1.5	12.2	53.9	40.7	95.3	2.7 (D)
Nevada	-	4	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA (D)
New Hampshire	-	4	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA) (D)
New Jersey	E2	41	12	.9	22.7	.5	.9	8.2	41.4	44.9	86.0	1.8 (D)
New York	-	48	13	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1 (D)
North Carolina	-	14	8	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC (D)
Ohio	-	49	19	2.1	51.6	1.2	2.5	23.7	114.1	111.2	224.5	2.0 (D)
Oregon	E3	15	5	.5	11.1	.3	.6	6.1	23.6	23.4	47.0	.4 (D)
Pennsylvania	-	43	20	1.9	46.5	1.2	2.3	23.4	105.0	81.4	186.4	4.5 (D)
South Carolina	E2	6	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA) (D)
Tennessee	-	16	8	.5	13.0	.4	1.0	5.9	29.0	33.4	61.8	AA (D)
Texas	E2	54	12	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7 (D)
Vermont	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB (D)
Virginia	E5	9	3	.3	5.9	.2	.4	3.3	17.7	12.9	30.8	.6 (D)
Washington	E2	13	4	.3	8.3	.2	.4	4.4	18.0	15.5	35.7	AA (D)
Wisconsin	-	36	17	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE (D)
Wyoming	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA (D)

Note: For qualifications of data, see footnotes on table 1a.

<sup>1</sup>Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

Table 3a. Summary Statistics for the Industry: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic vending machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)
Companies number	97	81	736	70	895
All establishments do	98	82	892	83	949
With 1 to 19 employees do	65	41	381	39	616
With 20 to 99 employees do	17	31	250	22	232
With 100 employees or more do	16	10	261	22	101
Employment and labor costs:					
Employees 1,000 mil dol	7.9	4.6	133.3	9.4	35.2
Compensation, total	221.6	130.0	4 239.6	306.8	1 044.0
Annual payroll	185.6	107.4	3 355.1	249.0	854.8
Fringe benefits	36.0	22.6	884.5	57.8	189.2
Social Security and other legally required payments	15.2	10.5	339.0	23.4	83.2
Employer payments and other programs	20.8	12.1	545.6	34.4	106.0

See footnotes at end of table.

Table 3a. Summary Statistics for the Industry: 1987—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic vending machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)
Production workers:					
Average for year	1,000	5.7	3.4	96.4	5.8
March	do	5.7	3.3	96.2	5.8
May	do	5.7	3.3	96.8	5.9
August	do	5.5	3.4	94.4	5.9
November	do	5.7	3.5	97.8	5.8
Hours	millions	11.1	7.0	192.8	12.0
January to March	do	2.7	1.7	47.5	2.8
April to June	do	2.9	1.7	49.2	3.3
July to September	do	2.7	1.7	47.4	2.9
October to December	do	2.8	1.9	48.8	3.0
Wages	mil dol.	108.7	66.7	2 169.8	132.8
Value added by manufacture	do	344.0	247.5	8 051.9	617.8
Cost of materials <sup>1</sup>	do	372.7	213.0	9 128.8	470.3
Materials, parts, containers, etc., consumed <sup>2</sup>	do	355.8	187.4	8 299.1	426.5
Resales	do	6.6	18.4	606.3	(D)
Fuels	do	2.4	1.4	46.8	3.0
Purchased electricity	do	5.6	3.0	134.6	6.7
Contract work	do	2.3	2.8	41.9	(D)
Quantity of electric energy used for heat and power:					
Purchased	mil kWh	87.9	53.0	2 627.2	115.0
Generated less sold	do	—	—	(S)	—
Total value of shipments	mil dol.	714.6	457.0	17 026.9	1 068.7
Primary products	do	685.6	409.1	14 940.8	881.2
Secondary products	do	18.2	17.1	1 109.9	145.3
Miscellaneous receipts, total	do	10.8	30.9	976.2	42.2
Value of resales	do	9.5	27.6	780.6	(D)
Contract receipts	do	(D)	1.4	(D)	7.0
Sales of scrap and refuse	do	(X)	(X)	36.1	.1
Receipts for installation (or construction) of products	do	(X)	(X)	9.7	5.8
Receipts for research and development work	do	(X)	(X)	(D)	(X)
Receipts for repair work	do	(X)	(X)	5.1	17.0
Other miscellaneous receipts	do	(X)	(X)	(D)	5.5
Miscellaneous receipts, n.s.k.	do	(D)	1.9	45.0	4.0
Inventories by stage of fabrication:					
Beginning of 1987	mil dol.	155.2	77.9	2 322.6	198.7
Finished goods	do	53.2	12.0	1 010.7	51.0
Work in process	do	40.1	31.2	582.0	100.1
Materials and supplies	do	61.9	34.8	729.8	47.5
End of 1987	do	158.6	84.8	2 578.6	213.9
Finished goods	do	58.9	12.9	1 138.2	62.6
Work in process	do	36.6	33.7	608.3	107.9
Materials and supplies	do	63.1	38.3	832.0	43.4
Primary product specialization ratio	percent	97	96	93	86
Coverage ratio	do	99	94	97	96

Note: For qualifications of data, see footnotes on table 1a.

<sup>1</sup>Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.

<sup>2</sup>Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1987

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic vending machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)
Gross book value of depreciable assets:					
Total:					
Beginning of year	187.9	78.8	4 397.4	241.3	796.1
New capital expenditures <sup>1</sup>	25.9	6.6	432.3	24.4	88.9
Used capital expenditures	.3	.2	28.3	.2	11.6
Retirements	4.3	8.4	204.3	7.6	23.9
End of year	209.8	77.2	4 653.7	258.3	872.8
Buildings and other structures:					
Beginning of year	56.9	24.0	1 150.5	62.9	274.9
New capital expenditures	3.1	1.1	59.0	2.0	20.3
Used capital expenditures	.1	.1	5.6	(Z)	4.9
Retirements	.5	.3	31.9	3.4	5.3
End of year	59.7	24.9	1 183.2	61.5	294.8
Machinery and equipment:					
Beginning of year	131.0	54.8	3 246.9	178.4	521.2
New capital expenditures	22.7	5.5	373.3	22.4	68.6
Used capital expenditures	.1	.2	22.6	.2	6.8
Retirements	3.8	8.2	172.4	4.2	18.6
End of year	150.1	52.3	3 470.6	196.8	578.0
Depreciation charges during 1987:					
Total	13.2	5.8	324.6	19.8	79.1
Buildings and other structures	2.2	.8	45.6	2.8	18.2
Machinery and equipment	11.0	4.9	279.0	17.0	60.9
Rental payments:					
Total	5.3	3.0	77.2	5.3	31.6
Buildings and other structures	2.3	2.1	30.8	2.1	18.6
Machinery and equipment	3.0	.9	46.4	3.2	13.1

Note: Retirements and depreciation data for establishments not included in the ASM sample were extrapolated from the historical ratio of retirements or depreciation to assets. These ratios were developed at the industry level.

<sup>1</sup>Data on new machinery and equipment expenditures by type are provided in table 3c.

**Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1987**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic vending machines (SIC 3581)		Commercial laundry equipment (SIC 3582)		Refrigeration and heating equipment (SIC 3585)		Measuring and dispensing pumps (SIC 3586)		Service industry machinery, n.e.c. (SIC 3589)	
	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)
<b>Purchased services:</b>										
Cost of purchased services for the repair of—										
Buildings and other structures	1.3	(X)	.5	(X)	15.4	(X)	.8	(X)	5.1	(X)
Response coverage ratio (percent) <sup>2</sup>	72.5	(X)	73.4	(X)	66.5	(X)	56.8	(X)	62.2	(X)
Machinery	3.2	(X)	2.3	(X)	52.7	(X)	5.1	(X)	7.3	(X)
Response coverage ratio (percent) <sup>2</sup>	73.5	(X)	73.6	(X)	67.7	(X)	61.3	(X)	62.8	(X)
Cost of purchased communication services	2.2	(X)	1.1	(X)	36.3	(X)	2.7	(X)	11.5	(X)
Response coverage ratio (percent) <sup>2</sup>	73.5	(X)	68.5	(X)	74.8	(X)	61.3	(X)	62.2	(X)
<b>New machinery and equipment expenditures</b>										
Automobiles, trucks, etc., for highway use	22.7	(X)	5.5	(X)	373.3	(X)	22.4	(X)	68.6	(X)
Computers and peripheral data processing equipment	.4	63	.3	56	5.6	7	.1	4	6.2	12
All other	3.8	3	.3	10	55.6	3	5.1	4	10.5	17
Adjustment ratio <sup>3</sup>	18.5	2	4.9	5	312.1	1	17.2	2	51.9	4
	1.3	(X)	1.7	(X)	1.1	(X)	1.2	(X)	1.1	(X)
<b>Cost of materials, components, parts, etc., used</b>										
Materials purchased or transferred from foreign sources <sup>4</sup>	355.8	(X)	187.4	(X)	8 299.1	(X)	426.5	(X)	1 538.6	(X)
Materials purchased or transferred from domestic sources	10.9	7	14.3	17	464.0	3	1.9	25	72.5	12
Adjustment ratio <sup>3</sup>	344.9	1	173.0	2	7 835.1	1	424.6	1	1 466.1	1
	1.2	(X)	1.4	(X)	1.3	(X)	1.6	(X)	1.7	(X)

<sup>1</sup>For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

<sup>2</sup>Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to total employment for all establishments classified in industry. (See appendixes for explanation of sample weight.)

<sup>3</sup>Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response to the inquiry. (See appendixes for further explanation.)

<sup>4</sup>Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

**Table 4. Industry Statistics by Employment Size of Establishment: 1987**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E <sup>1</sup>	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
<b>INDUSTRY 3581, AUTOMATIC VENDING MACHINES</b>												
Total	-	98	7.9	185.6	5.7	11.1	108.7	344.0	372.7	714.6	25.9	158.6
Establishments with an average of—												
1 to 4 employees	E9	28	(Z)	.9	(Z)	.1	.5	1.6	2.0	3.6	.1	.9
5 to 9 employees	E6	18	.1	2.0	.1	.2	1.2	5.2	4.6	9.8	.2	2.0
10 to 19 employees	E8	19	.3	4.4	.2	.3	2.5	7.2	8.2	15.3	.5	4.0
20 to 49 employees	E1	12	.4	8.1	.3	.5	3.8	17.6	12.5	30.1	.8	5.8
50 to 99 employees	E4	5	.4	6.2	.3	.5	4.3	9.9	10.5	19.9	(D)	6.6
100 to 249 employees	-	6	1.1	23.1	.8	1.6	13.5	41.5	47.5	89.2	3.7	25.4
250 to 499 employees	-	3	.8	16.8	.6	1.4	11.0	31.8	45.5	76.4	3.0	20.2
500 to 999 employees	-	7	4.8	124.2	3.4	6.6	71.9	229.3	241.9	470.3	17.7	93.7
Covered by administrative records <sup>2</sup>	E9	57	.4	5.8	.3	.5	3.6	10.7	13.6	24.3	.6	6.1
<b>INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT</b>												
Total	-	82	4.6	107.4	3.4	7.0	66.7	247.5	213.0	457.0	6.6	84.8
Establishments with an average of—												
1 to 4 employees	E9	14	(Z)	.6	(Z)	.1	.4	1.0	1.0	2.0	(Z)	.3
5 to 9 employees	E5	12	.1	1.2	.1	.1	.9	3.1	3.2	6.4	.1	.9
10 to 19 employees	E5	15	.2	4.2	.1	.3	2.4	7.5	6.8	14.3	.3	1.9
20 to 49 employees	E4	19	.6	12.9	.4	.8	7.6	27.3	20.3	47.7	.5	17.7
50 to 99 employees	-	12	.9	21.0	.6	1.3	10.7	50.0	53.1	102.3	1.6	21.0
100 to 249 employees	-	6	1.2	23.6	.9	1.8	16.4	74.3	59.7	131.6	1.9	33.9
250 to 499 employees	-	3	1.7	43.9	1.2	2.6	28.3	84.4	68.9	152.6	2.2	(D)
500 to 999 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup>	E9	33	.2	3.7	.2	.3	2.5	6.6	6.4	13.0	.3	2.1

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1987—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E1	All establish- ments (no.)	All employees		Production workers			Value added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
<b>INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT</b>												
<b>Total</b>	-	892	133.3	3 355.1	96.4	192.8	2 169.8	8 051.9	9 128.8	17 026.9	432.3	2 578.6
Establishments with an average of—												
1 to 4 employees	E9	148	.3	6.0	.2	.5	3.8	14.5	15.0	29.5	.7	5.2
5 to 9 employees	E9	114	.8	14.9	.6	1.1	9.8	34.1	37.8	72.0	1.8	12.4
10 to 19 employees	E7	119	1.7	34.7	1.1	2.3	20.9	72.6	82.8	155.3	3.8	28.4
20 to 49 employees	E2	147	4.7	98.2	3.2	7.3	55.2	239.5	341.0	577.3	9.4	78.1
50 to 99 employees	E1	103	7.3	160.7	5.2	10.7	96.3	376.6	362.9	733.8	14.7	130.7
100 to 249 employees	E1	139	22.3	479.6	15.8	32.0	287.2	1 156.8	1 102.4	2 250.1	49.3	409.8
250 to 499 employees	-	60	21.0	473.8	14.7	28.3	284.5	1 079.1	1 308.6	2 383.9	44.5	459.4
500 to 999 employees	-	34	24.0	593.8	18.0	35.1	389.3	1 628.1	2 236.8	3 746.0	69.7	619.6
1,000 to 2,499 employees	-	24	51.3	1 493.3	37.5	75.5	1 022.9	3 450.6	3 641.5	7 079.0	238.4	835.0
2,500 employees or more	-	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup>	E9	338	2.7	48.3	2.0	3.9	31.7	110.6	121.8	232.4	5.9	40.9
<b>INDUSTRY 3586, MEASURING AND DISPENSING PUMPS</b>												
<b>Total</b>	-	83	9.4	249.0	5.8	12.0	132.8	617.8	470.3	1 068.7	24.4	213.9
Establishments with an average of—												
1 to 4 employees	E9	12	(Z)	.6	(Z)	(Z)	.3	1.2	1.1	2.3	.1	.5
5 to 9 employees	E7	17	.1	2.8	.1	.2	1.4	7.4	5.6	12.7	.3	2.9
10 to 19 employees	E6	10	.1	2.7	.1	.2	1.6	8.0	9.1	17.3	.3	3.7
20 to 49 employees	E3	15	.5	11.0	.3	.6	5.4	27.4	20.7	49.2	.8	11.7
50 to 99 employees	E2	7	.4	10.3	.3	.7	5.7	34.0	30.5	64.2	1.4	16.3
100 to 249 employees	-	15	8.1	221.6	5.0	10.3	118.3	539.8	403.4	922.8	21.6	178.9
250 to 499 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup>	E9	34	.3	6.0	.2	.4	3.4	15.4	13.9	29.3	.7	6.7
<b>INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.</b>												
<b>Total</b>	E1	949	35.2	854.8	21.5	43.3	399.0	2 200.5	1 765.5	3 960.4	88.9	717.4
Establishments with an average of—												
1 to 4 employees	E9	280	.6	11.8	.4	.7	5.7	29.8	25.0	54.7	.6	9.3
5 to 9 employees	E7	192	1.3	24.1	.8	1.6	12.2	57.6	51.9	109.1	1.2	18.1
10 to 19 employees	E4	144	2.0	42.2	1.2	2.4	20.9	97.0	89.0	188.2	2.8	31.2
20 to 49 employees	E2	158	4.8	108.0	2.9	5.8	51.7	250.5	251.8	499.8	9.2	75.5
50 to 99 employees	E1	74	5.2	129.1	3.1	6.0	55.8	363.3	281.1	642.4	14.9	110.9
100 to 249 employees	-	79	12.4	298.7	7.7	15.7	152.4	780.3	649.3	1 425.2	27.9	292.1
250 to 499 employees	-	19	6.8	172.5	4.5	9.1	86.1	494.0	329.0	824.1	32.5	138.6
500 to 999 employees	-	3	2.0	68.4	1.0	2.0	14.2	127.9	88.5	217.0	(D)	41.6
Covered by administrative records <sup>2</sup>	E9	425	1.9	31.7	1.2	2.3	15.7	76.3	64.5	140.8	1.6	24.0

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

<sup>1</sup>Payroll and sales data for some small single unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Report forms were not mailed to small single unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1987 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1987

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establish- ments (number)	All employees		Production workers			Value added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3581	<b>Automatic vending machines:</b> All establishments in industry -----	98	7.9	185.6	5.7	11.1	108.7	344.0	372.7	714.6	25.9
35811	Establishments with this product class primary: Automatic merchandising machines -----	26	6.0	143.4	4.5	8.7	90.1	277.4	290.4	564.4	16.2
35812	Coin-operated mechanisms and parts for automatic merchandising machines -----	10	1.5	35.4	.8	1.8	14.3	53.9	66.2	121.6	8.9
3582	<b>Commercial laundry equipment:</b> All establishments in industry -----	82	4.6	107.4	3.4	7.0	66.7	247.5	213.0	457.0	6.6

See footnotes at end of table.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1987—**

Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3585	<b>Refrigeration and heating equipment:</b> All establishments in industry -----	892	133.3	3 355.1	96.4	192.8	2 169.8	8 051.9	9 128.8	17 026.9	432.3
35851	Establishments with this product class primary: Heat transfer equipment -----	132	39.1	1 063.9	27.1	54.1	667.7	2 445.3	2 435.5	4 840.6	91.7
35852	Unitary air-conditioners -----	56	30.7	760.7	22.7	44.7	499.0	1 998.1	2 700.8	4 649.8	125.3
35853	Commercial refrigerators and related equipment -----	134	19.5	447.0	13.5	27.1	268.0	1 080.2	907.3	1 983.5	43.1
35854	Compressors and compressor units, all refrigerants -----	37	16.5	460.2	12.7	26.3	330.2	1 019.9	1 268.7	2 279.7	56.8
35855	Refrigeration condensing units (complete) -----	5	.5	10.7	.4	.7	6.5	18.6	32.0	50.9	.6
35856	Room air-conditioners and dehumidifiers -----	15	5.4	111.6	4.0	7.6	72.7	304.0	538.5	784.9	25.5
35859	Refrigeration and air-conditioning equipment, n.e.c. -----	37	4.0	79.6	2.9	5.6	44.0	172.4	169.1	338.8	9.7
3585C	Warm air furnaces, humidifiers, and electric comfort heating equipment -----	34	3.9	85.5	2.8	5.3	52.9	208.7	241.3	445.2	7.9
3585D	Parts for refrigeration and heating equipment -----	60	9.2	248.1	7.0	14.8	171.0	587.6	573.1	1 166.0	60.7
3586	<b>Measuring and dispensing pumps:</b> All establishments in industry -----	83	9.4	249.0	5.8	12.0	132.8	617.8	470.3	1 068.7	24.4
3589	<b>Service industry machinery, n.e.c.:</b> All establishments in industry -----	949	35.2	854.8	21.5	43.3	399.0	2 200.5	1 765.5	3 960.4	88.9
35891	Establishments with this product class primary: Commercial cooking and food warming equipment -----	97	10.9	262.0	7.3	14.9	141.2	648.7	479.9	1 125.6	20.4
35892	Service industry machines, n.e.c., and parts -----	259	17.8	458.7	10.0	20.2	189.1	1 213.6	997.4	2 207.0	59.3
35893	Commercial and industrial vacuum cleaners -----	16	1.6	36.8	1.1	2.1	19.3	101.7	91.6	194.9	3.6

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. **Industry-Product Analysis—Value of Shipments and Primary Product Shipments and Specialization and Coverage Ratios for the Industry: 1987 and Earlier Census Years**

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments						Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio col. B ÷ col. B+C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio col. B ÷ col. F (percent)	
3581	Automatic vending machines-----	1987--	714.6	685.6	18.2	10.8	97	695.2	685.6	9.6	99
		1982--	479.4	436.4	30.8	12.3	93	445.7	436.4	9.4	98
		1977--	410.1	367.7	23.7	18.7	94	396.2	367.7	26.5	93
3582	Commercial laundry equipment-----	1987--	457.0	409.1	17.1	30.9	96	433.3	409.1	24.2	94
		1982--	321.0	293.6	11.7	15.6	96	338.7	293.6	45.1	87
		1977--	220.3	188.4	20.1	11.8	90	233.6	188.4	45.2	81
3585	Refrigeration and heating equipment-----	1987--	17 026.9	14 940.8	1 109.9	976.2	93	15 329.0	14 940.8	388.2	97
		1982--	12 390.3	10 587.3	914.3	888.7	92	11 035.6	10 587.3	448.3	96
		1977--	9 638.1	8 035.6	959.4	643.1	89	8 501.7	8 035.6	466.1	95
3586	Measuring and dispensing pumps -----	1987--	1 068.7	881.2	145.3	42.2	86	916.7	881.2	35.4	96
		1982--	676.2	547.3	87.6	41.3	86	590.7	547.3	43.4	93
		1977--	375.7	217.0	137.0	21.7	61	265.6	217.0	48.6	82
3589	Service industry machinery, n.e.c. -----	1987--	3 960.4	3 514.7	203.9	241.9	95	3 926.3	3 514.7	411.6	90
		1982--	2 583.0	2 253.6	173.5	155.8	93	2 550.4	2 253.6	296.8	88
		1977--	1 771.8	1 515.7	153.6	102.5	91	1 687.6	1 515.7	171.9	90

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>3581- --</b>	<b>AUTOMATIC MERCHANDISING MACHINES</b>						
	<b>Total</b>	(NA)	(X)	695.2	(NA)	(X)	445.7
35811 --	Automatic merchandising machines:						
35811 00	Automatic merchandising machines, coin-operated (vending) (for additional detail, see Current Industrial Report MA-35U, Vending Machines (Coin-Operated))	32	(X)	502.1	34	(X)	334.1
35812 --	Coin-operated mechanisms and parts for automatic merchandising machines	(NA)	(X)	161.9	(NA)	(X)	96.2
35812 51	Coin-operated mechanisms for vending machines (for sale separately) thousands	19	(S)	103.8	14	565.0	60.5
35812 69	Parts for automatic merchandising machines, except coin-operated mechanisms	17	(X)	57.1	16	(X)	35.3
35812 00	Coin-operated mechanisms and parts for automatic merchandising machines, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	.4
35810 --	Automatic merchandising machines, n.s.k.	(NA)	(X)	31.2	(NA)	(X)	15.5
35810 00	Automatic merchandising machines, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	6.7	(NA)	(X)	4.1
35810 02	Automatic merchandising machines, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	24.6	(NA)	(X)	11.4
<b>3582- --</b>	<b>COMMERCIAL LAUNDRY EQUIPMENT</b>						
	<b>Total</b>	(NA)	(X)	433.3	(NA)	(X)	338.7
35820 --	Commercial laundry, dry cleaning, and pressing machinery and equipment:						
	Commercial laundry equipment and laundry presses, machines with a dry linen capacity exceeding 10 kg (22 lb):						
35820 21	Washers only thousands	9	(S)	74.3	8	74.8	27.2
35820 22	Extractors only do	5			4	(S)	2.0
	Washer-extractor combinations:						
35820 13	Coin-operated, more than 22 lb load thousands	3		*10.8	83.1	3	4.4
35820 14	Other than coin-operated do	7				9	6.0
	Drying tumblers:						
35820 17	Coin-operated, more than 22 lb load thousands	6	(S)	38.3	6	31.8	34.8
35820 18	Other than coin-operated do	6	(S)	31.3	8	18.9	20.9
35820 26	Ironers, flatwork do	7	(S)	14.2	11	1.2	16.6
35820 27	Presses, laundry do	5		*14.0	6	2.8	10.0
35820 28	Other commercial laundry equipment do	12	(S)	28.5	20	*4.0	28.7
	Parts, attachments, and accessories:						
35820 35	For washers, extractors, and combinations	9	(X)	18.5			
35820 36	For drying tumblers	3	(X)	4.3		11	(X)
35820 25	For other commercial laundry and pressing machinery and equipment, except dry cleaning	7	(X)	11.8	16	(X)	30.0
	Dry cleaning equipment and clothing presses:						
35820 34	Dry cleaning units thousands	8	(S)	9.7	7	(S)	11.0
35820 41	Presses, dry cleaning do	4	(S)	10.6	3	3.1	9.8
35820 43	Garment manufacturers' (needle trades) presses do	3					
35820 81	Other dry cleaning equipment, including reclaiming units do	4	(S)	15.8	6	(S)	10.7
35820 91	Parts, attachments, and accessories	11	(X)	14.0	11	(X)	17.5
35820 00	Commercial laundry equipment, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	22.6	(NA)	(X)	20.0
35820 02	Commercial laundry equipment, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	13.7	(NA)	(X)	8.6
<b>3585- --</b>	<b>REFRIGERATION AND HEATING EQUIPMENT</b>						
	<b>Total</b>	(NA)	(X)	15 329.0	(NA)	(X)	*11 150.7
35851 --	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained:						
35851 00	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained (for additional detail, see Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment)	157	(X)	3 692.5	152	(X)	2 908.0
35852 --	Unitary air-conditioners:						
35852 00	Unitary air-conditioners (for additional detail, see Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment)	53	(X)	3 449.0	65	(X)	1 972.1
35853 --	Commercial refrigerators and related equipment	(NA)	(X)	1 768.9	(NA)	(X)	1 070.8
	Refrigerated enclosures, including self-contained units, remote units with or without condensing units and cabinets						
35853 12	Sectional coolers or cooling rooms of the prefabricated (factory produced) type, including walk-in, roll-in, and combination cooler-display types thousands	47	(S)	293.2	62	**67.9	223.3
	Reach-in refrigerators and reach-in type vertical display cabinets, with solid or glazed doors:						
35853 15	For normal temperature application, i.e., not intended for frozen foods, ice cream, etc. thousands	30		*120.2	149.8	38	*128.5
35853 18	For low temperature application do	29		*104.0	186.8	32	43.5

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
3585- --	<b>REFRIGERATION AND HEATING EQUIPMENT—</b> Con.						
35853 --	Commercial refrigerators and related equipment—Con. Refrigerated enclosures, including self-contained units, remote units with or without condensing units and cabinets—Con. Display cases for meats, dairy products, produce, and other perishables, operated at normal temperatures:						
35853 22	Closed ----- thousands	17	**30.9	41.6	19	**16.0	25.9
35853 23	Open self-service:						
35853 28	One level ----- thousands	9	**48.6	119.4	8	*24.7	42.3
	Multilevel ----- do	10	27.9	82.2	11	31.3	79.5
	Display cases and cabinets for frozen foods, ice cream, and other foods operated at low temperatures, except coin-operated:						
35853 31	Frozen food display cases, open, self-service:						
35853 33	One level ----- thousands	11	(S)	98.5	9	13.2	38.1
35853 35	Multilevel ----- do	5	(S)	64.6	9	13.2	49.3
35853 36	Frozen food cabinets, closed, other than reach-in type ----- do	9	(S)	10	14.8	19.8	
35853 38	Ice cream counter freezers, including frozen custard machines ----- do	4	22.7	48.3	4	(S)	2.4
35853 43	Ice cream dispensing and hardening cabinets ----- do	4	(X)	6	13.7	19.1	
	Mechanical drinking water coolers (for additional detail, see Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment)	8	(X)	152.3	7	(X)	95.0
	Mechanical beverage cooling and dispensing equipment, except coin-operated:						
35853 52	Bottled beverage coolers, dry and wet types ----- thousands	7	(S)	40.9			
35853 57	Bulk beverage dispensers, including malt dispensers and precooler cabinets ----- do	14	(S)	187.2	8	(S)	106.5
35853 73	Farm and dairy milk coolers, including immersion type and bulk tank storage coolers ----- do	2	(D)	(*)	7	**8.6	13.2
35853 97	Other commercial refrigerators, including dough retarders, egg refrigerators, environmental control equipment, laboratory and industrial refrigerators, mortuary refrigerators, etc. ----- do	42	(X)	4257.3	33	(X)	87.0
35853 00	Commercial refrigerators and related equipment, n.s.k. ----- (NA)		(X)	46.8	(NA)	(X)	32.1
35854 --	Compressors and compressor units, all refrigerants:						
35854 00	Compressors and compressor units, all refrigerants (for additional detail, see Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment) -----	45	(X)	2 317.4	43	(X)	1 734.7
35855 --	Refrigeration condensing units (complete):						
35855 00	Condensing units, all refrigerants, except ammonia (complete) (for additional detail, see Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment) -----	30	(X)	241.1	40	(X)	196.9
35856 --	Room air-conditioners and dehumidifiers:						
35856 00	Room air-conditioners and dehumidifiers, except portable dehumidifiers (for additional detail, see Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment) -----	26	(X)	909.7	23	(X)	897.5
35859 --	Refrigeration and air-conditioning equipment, n.e.c. ----- (NA)		(X)	443.7	(NA)	(X)	428.9
35859 01	Soda fountain equipment (cooler box, fountainette, and similar equipment) -----	9	(X)	97.7	13	(X)	80.5
35859 02	Beer dispensing equipment -----	7	(X)	12.6	5	(X)	18.5
35859 03	Evaporative air coolers -----	11	(X)	61.3	18	(X)	94.1
35859 04	Complete refrigeration systems shipped to other manufacturers for incorporation into a cabinet, vending machine, or household refrigerator -----	2	(X)	(*)	6	(X)	60.9
35859 05	Snow making machinery -----	-	(X)	-	36	(X)	174.9
35859 07	Other refrigeration machinery and air-conditioning equipment -----	42	(X)	5255.1	(NA)	(X)	-
35859 00	Refrigeration and air-conditioning equipment, n.e.c., n.s.k. ----- (NA)		(X)	17.0	(NA)	(X)	-
3585C --	Warm air furnaces, humidifiers, and electric comfort heating equipment:						
3585C 00	Warm air furnaces, including duct furnaces; humidifiers, all types, including central systems and self-contained; and electric comfort heating equipment, excluding portable and residential wall or baseboard radiant heating units (for additional detail, see Current Industrial Report MA-35M, Air-Conditioning and Refrigeration Equipment) -----	61	(X)	883.5	64	(X)	3520.3
3585D --	Parts and accessories for air-conditioning and heat transfer equipment ----- (NA)		(X)	1 153.9	(NA)	(X)	3893.0
3585D 10	Parts for heat transfer equipment, including parts for air-conditioning condensing units -----	50	(X)	456.5	55	(X)	371.8
3585D 20	Parts for unitary air-conditioners -----	25	(X)	147.2	29	(X)	147.2
3585D 30	Parts for commercial refrigeration and related equipment -----	38	(X)	92.4	41	(X)	101.2
3585D 40	Parts for compressors and compressor units -----	19	(X)	107.6	18	(X)	72.9
3585D 50	Parts for condensing units, excluding air-conditioning condensing units -----	6	(X)	4.7	4	(X)	4.7
3585D 60	Parts for dehumidifiers and room air-conditioners -----	12	(X)	60.2	13	(X)	20.9
3585D 70	Parts for refrigeration and air-conditioning equipment, n.e.c. -----	28	(X)	137.2	26	(X)	57.5
3585D 80	Parts for warm air furnaces, including duct furnaces (excluding complete humidifiers) -----	24	(X)	78.6	30	(X)	348.8
3585D 00	Parts and accessories for air-conditioning and heat transfer equipment, n.s.k. ----- (NA)		(X)	69.3	(NA)	(X)	68.0

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendices. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
3585- --	<b>REFRIGERATION AND HEATING EQUIPMENT—</b> Con.						
35850 --	Refrigeration and heating equipment, n.s.k.	(NA)	(X)	469.3	(NA)	(X)	528.5
35850 00	Refrigeration and heating equipment, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	237.0	(NA)	(X)	405.4
35850 02	Refrigeration and heating equipment, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	232.4	(NA)	(X)	123.1
3586- --	<b>MEASURING AND DISPENSING PUMPS</b>						
35860 --	Total	(NA)	(X)	916.7	(NA)	(X)	590.7
35860 --	Measuring and dispensing pumps: Gasoline dispensing pumps, computing type (filling station type):						
35860 13	Single units: With suction pumping unit	7	35.3	173.4	7	25.5	60.3
35860 14	Without suction pumping unit	3	do	do	6	*12.1	25.0
35860 15	Multiple units: With suction pumping unit	4	(S)	206.5	5	44.7	135.1
35860 16	Without suction pumping unit	3	do	do	5	(NA)	(6)
35860 31	Lubricating oil pumps, including barrel pumps	7	**5 302.2	36.3	6	(S)	32.1
35860 51	Grease guns	7	do	31.0	6	(S)	do
35860 89	Other measuring and dispensing pumps (including noncomputing gasoline dispensing pumps, grease pumps, and lubrication oil outfitts)	22	(S)	115.4	33	(S)	6177.3
35860 91	Parts and attachments for measuring and dispensing pumps	24	(X)	275.5	20	(X)	134.3
35860 00	Measuring and dispensing pumps, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	49.5	(NA)	(X)	21.8
35860 02	Measuring and dispensing pumps, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	29.1	(NA)	(X)	4.8
3589- --	<b>SERVICE INDUSTRY MACHINERY, N.E.C.</b>						
35891 --	Total	(NA)	(X)	3 926.3	(NA)	(X)	2 550.4
35891 --	Commercial cooking and food-warming equipment	(NA)	(X)	1 092.1	(NA)	(X)	609.0
35891 11	Nonelectric: Commercial ranges, ovens, and broilers (except electric)	29	(S)	257.9	20	*90.7	95.7
35891 13	Deep-fat fryers (except electric)	16	(S)	91.4	11	45.9	31.2
35891 30	Other commercial cooking equipment, including griddles, toasters, coffee urns, pressure cookers (steam), etc. (except electric)	15	(S)	47.0	20	**50.1	60.7
35891 31	Commercial food-warming equipment, including steam tables (except electric)	6	(X)	25.0	7	(X)	16.1
35891 61	Electric: Commercial ranges, ovens, and broilers	21	(S)	135.6	5	*78.0	68.5
35891 63	Commercial microwave stoves and ovens	3	do	do	16	*113.7	27.9
35891 67	Deep-fat fryers	18	(S)	55.5	33	*385.3	105.8
35891 70	Other commercial cooking equipment, including griddles, toasters, coffee makers, coffee urns, etc.	29	(S)	213.5	31	(X)	101.9
35891 81	Commercial food-warming equipment, including hot food server units and steam tables	29	(X)	159.1	31	(X)	68.2
35891 85	Parts and accessories for commercial cooking and food-warming equipment	36	(X)	89.5	31	(X)	33.0
35891 00	Commercial cooking and food-warming equipment, n.s.k.	(NA)	(X)	17.6	(NA)	(X)	do
35892 --	Service industry machines and parts	(NA)	(X)	2 138.1	(NA)	(X)	1 568.4
35892 03	Water heaters (excluding boilers and instantaneous): Electric (more than 120 gallons) (454.2 liters)	6	(?)	(?)			
35892 04	All other (more than 120 gallons) (454.2 liters)	4	7104.5	767.6			
35892 05	Water heaters, instantaneous: Gas	6	(X)	(?)			
35892 06	Electric and other	4	(S)	814.5			
35892 07	Parts for water heaters (excluding tanks, burners)	5	(X)	7.3			
35892 22	Water softeners: Industrial	19	(S)	109.8	19	(S)	112.6
35892 26	Farm, household, and commercial	22	(S)	109.0	19	(S)	96.3
35892 27	Parts for water softeners (excluding tanks)	12	(X)	19.0	(NA)	(X)	(6)
35892 35	Commercial and industrial floor and carpet cleaning equipment: Waxing and polishing machines	18	(S)	(10)	14	167.7	34.4
35892 42	Sanding and scrubbing machines	9	(S)	69.5	8	114.2	28.8
35892 43	Carpet cleaning equipment, including sweepers (except vacuum cleaners)	28	**349.9	152.9	(NA)	(NA)	(11)
35892 44	Other machines (except vacuum cleaners)	7	(D)	10181.3	(NA)	(NA)	(11)
35892 45	Parts and attachments	24	(X)	51.9	(NA)	(X)	(6)
35892 73	Dishwashing machines, commercial type: Conveyor type	7	(S)	50.9	9	(S)	41.0
35892 75	All other	16	(S)	55.9	13	(S)	33.7
35892 76	Parts for dishwashing machines	7	(X)	14.4	(NA)	(X)	(6)
35892 77	Sewer pipe and drain cleaning equipment: Power-driven	9	do	do	14	*39.3	*33.6
35892 78	Hand operated: Professional equipment	3	(S)	47.8	14	(X)	do
35892 79	Other	1	do	do	do	do	do
35892 80	Parts, except or coiled wire	6	(X)	7.3	(NA)	(X)	(6)

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
3589- --	<b>SERVICE INDUSTRY MACHINERY, N.E.C.—Con.</b>						
35892 --	Service industry machines and parts—Con.						
	High-pressure (more than 1,000 p.s.i.) cleaning equipment						
35892 85	Sand blasting machines	5					
35892 87	Soot removing machines	1	(S)	52.6	36	(S)	121.9
35892 88	Other, including steam and similar	14					
35892 91	Parts for high-pressure cleaning equipment	10	(X)	14.7	(NA)	(X)	(0)
35892 82	Other service industry machines:						
	Commercial car, truck, and bus washing machinery and equipment	16	(S)	90.4	22	(S)	48.3
35892 83	Garbage and trash compactors	20	6.2	78.3	21	(S)	39.8
35892 81	Sewage treatment equipment	62	(X)	389.2	54	(X)	275.6
35892 98	Other equipment	81	(S)	351.4	(NA)	(NA)	11464.5
35892 99	Parts for other service industry machines	38	(X)	77.3	(NA)	(X)	9137.6
35892 00	Service industry machines, n.s.k.	(NA)	(X)	125.1	(NA)	(X)	40.7
35893 --	Commercial and industrial vacuum cleaners, including parts and attachments	(NA)	(X)	271.6	(NA)	(X)	192.9
	Portable:						
35893 01	Complete machine	29	(S)	208.8			
35893 02	Parts and attachments	(NA)	(X)	44.5	36	(S)	179.7
	Central system:						
35893 08	Complete central vacuum unit	7	(S)	8.5			
35893 09	Parts and attachments	4	(X)	3.6			
35893 00	Commercial and industrial vacuum cleaners, n.s.k.	(NA)	(X)	6.1	7	11.9	7.1
35890 --	Service industry machinery, n.e.c., n.s.k.	(NA)	(X)	424.4	(NA)	(X)	180.1
35890 00	Service industry machinery, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	284.3	(NA)	(X)	119.9
35890 02	Service industry machinery, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	140.1	(NA)	(X)	60.2

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

<sup>1</sup>Data reported by all producers, not just those with shipments of \$100,000 or more.

<sup>2</sup>For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>3</sup>For 1982, data for product codes 3585- --, 3595C 00, 3595D --, and 3585D 80 have been revised to include data for electric comfort heating equipment and parts thereof. In 1982, these data were classified in SIC industry 3699, Electric Equipment and Supplies, N.E.C., and published under product codes 36993 00, Electric Heating Comfort Equipment, and 36994 07, Parts for Electric Comfort Heating Equipment, Excluding Portable and Residential Wall or Baseboard Radiant Heating Units.

<sup>4</sup>For 1987, data for product code 35853 73 are combined with product code 35853 97 to avoid disclosing data for individual companies.

<sup>5</sup>For 1987, data for product code 35859 04 are combined with product code 35859 07 to avoid disclosing data for individual companies.

<sup>6</sup>For 1982, data for product code 35860 31 were not published separately but were included with product code 35860 89.

<sup>7</sup>For 1987, data for product code 35892 03 are combined with product code 35892 04 to avoid disclosing data for individual companies.

<sup>8</sup>For 1987, data for product code 35892 05 are combined with product code 35892 06 to avoid disclosing data for individual companies.

<sup>9</sup>For 1982, data for product codes 35892 07, 35892 27, 35892 45, 35892 45, 35892 76, 35892 80, and 35892 91 were not collected separately but were included with product code 35892 99.

<sup>10</sup>For 1987, data for product codes 35892 35 and 35892 44 are combined to avoid disclosing data for individual companies.

<sup>11</sup>For 1982, data for product codes 35892 43 and 35892 44 were not collected separately but were included with product code 35892 98.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987 product shipments		1982 product shipments	
		Quantity	Value (million dollars)	Quantity	Value (million dollars)
	<b>MA34N, SELECTED HEATING EQUIPMENT</b>				
	Electric comfort heating equipment:				
	Central systems:				
3585C 59	Duct furnaces	619.1	103.2	34.4	6.5
3585C 60	Warm air furnaces, forced air			251.8	53.2
3585C 61	Heating boilers	116.3	20.2	45.1	9.4
3585C 68	Electric duct heaters				
	Decentralized systems, excluding portable and residential:				
3585C 62	Baseboard	(X)	(1)	(X)	(1)
3585C 63	Infrared	30.7	2.0	28.3	1.8
3585C 64	Unit heaters	280.6	25.4	50.9	11.6
3585C 67	Other	(X)	111.2	(X)	110.0

See footnotes at end of table.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982—Con.

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987 product shipments		1982 product shipments	
		Quantity	Value (million dollars)	Quantity	Value (million dollars)
	<b>MA35M, AIR-CONDITIONING AND REFRIGERATION EQUIPMENT</b>				
35851 --	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self contained	(X)	3 605.7	(X)	2 821.8
	Heat transfer equipment, except room and unitary air conditioners:				
35851 01	Packaged terminal air-conditioners <sup>2</sup> thousands	135.2	64.0	135.7	183.1
35851 03	Packaged terminal heat pumps do	98.3	49.7	52.5	30.3
35851 04	Evaporative condensers: 100 tons or less thousands	.7	3.8	1.0	5.9
35851 07	More than 100 tons do	1.7	27.1	1.1	16.9
35851 08	Room fan-coil air-conditioning units: Vertical stack thousands	27.8	14.8	21.9	13.6
35851 09	Vertical do	111.4	45.3	98.3	41.9
35851 10	Horizontal do	98.7	31.1	87.0	19.2
35851 11	Room air induction units do	(D)	(D)	(D)	(D)
35851 13	Central station air-conditioning units (motor-driven fan-type): Draw through thousands	46.5	195.1	42.8	156.1
35851 15	Blow through do	7.5	30.8	8.8	38.2
35851 17	Heating and ventilating do	5.3	17.2	7.4	24.6
	Unit coolers (refrigeration): Ceiling and wall-mounted types:				
35851 18	1,000 Btu per hr thousands	22.0	1.7	19.2	1.3
35851 19	1,001 to 2,000 Btu per hr do	32.7	3.7	29.5	3.2
35851 20	2,001 to 4,000 Btu per hr do	16.6	2.9	15.3	2.3
35851 21	4,001 to 6,000 Btu per hr do	16.3	5.8	16.0	3.2
35851 22	6,001 to 8,000 Btu per hr do	20.4	7.0	17.5	4.1
35851 23	8,001 to 12,000 Btu per hr do	35.1	12.9	25.9	7.6
35851 24	12,001 to 18,000 Btu per hr do	27.4	14.6	20.2	9.4
35851 25	More than 18,000 Btu per hr do	29.7	42.9	20.1	27.7
35851 28	Floor-mounted dry and spray types do	(D)	(D)	(D)	(D)
35851 29	Air cooled refrigerant condensers (remote type): 30 tons or less thousands	14.5	16.4	12.4	13.8
35851 31	40 tons do	1.4	4.8	1.5	5.8
35851 33	50 tons or more do	3.5	26.4	2.5	14.3
	Miscellaneous heat transfer equipment: Shell-and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube:				
35851 35	Condensers do	(X)	32.8	(X)	29.9
35851 36	Liquid coolers do	(X)	28.0	(X)	32.0
35851 37	Liquid-suction heat exchangers, and refrigerant liquid receiver do	(X)	(D)	(X)	25.7
	Central system finned coils (air-conditioning and refrigeration type) used with but not including means for air circulation:				
35851 38	Standard steam and steam distributing tube do	(X)	15.0	(X)	15.0
35851 39	Standard water cooling and/or heating and cleanable tube water do	(X)	47.8	(X)	41.9
35851 40	Volatile refrigerant cooling do	(X)	10.4	(X)	8.1
	Coil sales by original equipment manufacturers intended for resale or assembly into equipment by other manufacturers (all types):				
35851 41	Copper (only) do	(X)	214.8	(X)	9.6
35851 42	Copper and aluminum do	(X)		(X)	113.6
35851 43	Aluminum (only) do	(X)	50.0	(X)	44.0
35851 44	All other, including steel do	(X)	37.8	(X)	
35851 45	Factory-assembled, finned gravity coils, including wetted-surface dehumidifiers do	(X)	(D)	(X)	7.1
	Other air-conditioning and refrigeration equipment: Centrifugal liquid chilling packages:				
	Hermetic type:				
35851 47	200 hp or less thousands	.5	18.6	.8	31.6
35851 49	201 to 300 hp do	.6	24.8	1.0	37.6
35851 50	301 to 400 hp do	.6	29.7	.8	43.1
35851 51	401 to 500 hp do	(D)	(D)	.3	18.4
35851 52	501 to 1,000 hp do	(D)	(D)	.3	40.9
35851 53	More than 1,000 hp do	(D)	(D)	.6	88.9
35851 55	Open-type (all sizes) do	(D)	(D)		
	Ice-making machines:				
	Self-contained ice-cube makers:				
35851 62	Automatic, less than 200 lb per day thousands	87.1	41.5	52.6	30.3
35851 64	Automatic, 201 lb to 300 lb per day do	27.8	24.7	19.4	18.2
35851 66	Automatic, 301 lb or more per day do	66.7	104.9	37.9	70.4
	Self-contained flake or chip machines:				
35851 68	300 lb or less per day thousands	49.7	45.1	6.0	8.9
35851 70	301 lb or more per day do	.4	5.8	16.9	27.6
35851 71	Not self-contained do			3.4	7.1
35851 72	Combination ice makers and ice dispensers do	10.8	18.4	12.0	19.9
35851 73	Combination ice makers and drink dispensers do	1.0	2.5	2.4	5.8
35851 75	Absorption liquid-chilling systems do	(D)	(D)	.2	14.5
35851 76	Absorption and open-type absorption systems do	(D)	(D)	1.5	18.0
	Mobile vehicle refrigeration systems:				
35851 77	Mechanical refrigeration systems for railway freight cars thousands	(D)	(D)	-	-
35851 78	Mechanical refrigeration systems for other mobile vehicles do	(D)	(D)	68.8	222.6
	Mobile vehicle mechanical air-conditioning systems:				
35851 79	Air-conditioning units and systems for passenger automobiles <sup>3</sup> thousands	12 174.3	1 115.7	5 651.3	801.8
35851 80	Air-conditioning units and systems for truck, bus, construction and agriculture machinery and other uses do	2 266.3	213.1	1 064.4	102.0
	Reciprocating liquid chillers:				
35851 87	20 hp or less thousands	5.3	42.8	3.5	27.8
35851 88	21 to 49 hp do	1.8	18.2	2.4	25.3
35851 89	50 to 75 hp do	2.5	41.1	2.5	40.8
35851 90	More than 75 hp do	3.7	104.0	3.3	85.7
35851 99	Factory-fabricated water-cooling towers do	10.1	96.0	11.2	83.6

See footnotes at end of table.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982—Con.

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987 product shipments		1982 product shipments	
		Quantity	Value (million dollars)	Quantity	Value (million dollars)
	<b>MA35M, AIR-CONDITIONING AND REFRIGERATION EQUIPMENT—Con.</b>				
35852 —	Unitary air-conditioners				
35852 10	Air-conditioners (except room) thousands	213.6	3 422.4 82.6	142.2	1 942.4 53.5
	Single package air-conditioners:				
	Horizontal:				
35852 31	Less than 27,000 Btu per hour thousands	30.0	13.8	19.7	9.7
35852 32	27,000 to 32,999 Btu per hour do	13.6	9.2	12.4	8.0
35852 33	33,000 to 53,999 Btu per hour do	54.9	44.0	67.3	52.2
35852 34	54,000 to 64,999 Btu per hour do	22.1	28.0	21.8	25.1
35852 35	65,000 to 96,999 Btu per hour do	8.5	18.1	10.1	22.5
35852 36	97,000 to 134,999 Btu per hour do	8.3	23.7	5.5	16.8
35852 37	135,000 to 184,999 Btu per hour do	4.1	18.2	3.6	14.8
35852 38	185,000 to 249,999 Btu per hour do	2.4	16.8	1.5	10.0
35852 39	250,000 to 319,999 Btu per hour do	1.1	9.9	1.2	10.2
35852 40	320,000 to 379,999 Btu per hour do	.6	7.6	.7	8.3
35852 41	380,000 Btu per hour or more do	2.3	53.9	2.3	35.2
	Other than horizontal:				
35852 42	Less than 33,000 Btu per hour thousands	.6	1.1	1.2	1.2
35852 43	33,000 to 53,999 Btu per hour do	3.7	4.1	7.1	10.2
35852 44	54,000 to 64,999 Btu per hour do	3.3	7.5	5.2	9.7
35852 45	65,000 to 96,999 Btu per hour do	2.0	6.3	2.6	6.4
35852 46	97,000 to 134,999 Btu per hour do	2.1	7.6	2.5	8.3
35852 47	135,000 to 184,999 Btu per hour do	2.2	10.7	1.8	8.0
35852 48	185,000 to 249,999 Btu per hour do	.6	4.6	.8	4.5
35852 49	250,000 Btu per hour or more do	1.7	20.5	1.2	11.7
	Year-round air-conditioners, single package and remote-condenser type (except heat pumps):				
35852 50	Less than 33,000 Btu per hour thousands	85.4	76.9	39.5	37.4
35852 51	33,000 to 38,999 Btu per hour do	76.2	81.2	22.0	23.0
35852 52	39,000 to 43,999 Btu per hour do	19.9	30.5	7.5	8.1
35852 53	44,000 to 53,999 Btu per hour do	34.4	53.4	12.5	16.1
35852 54	54,000 to 64,999 Btu per hour do	57.4	97.0	31.3	53.3
35852 55	65,000 to 134,999 Btu per hour do	54.2	204.4	25.7	99.4
35852 56	135,000 to 184,999 Btu per hour do	13.9	102.4	5.9	32.0
35852 57	185,000 to 249,999 Btu per hour do	5.7	57.8	3.4	31.3
35852 58	250,000 to 319,999 Btu per hour do	3.0	33.7	1.3	13.5
35852 59	320,000 to 379,999 Btu per hour do	1.2	15.6	.6	7.8
35852 60	380,000 to 539,999 Btu per hour do	.9	18.6	.5	10.1
35852 61	540,000 to 639,999 Btu per hour do	.5	14.0	.5	7.2
35852 62	640,000 Btu per hour or more do	1.0	38.9	.5	13.5
	Air source heat pumps (except room air-conditioners):				
	Single package:				
35852 63	Less than 27,000 Btu per hour thousands	31.4	23.5	18.8	13.6
35852 64	27,000 to 41,999 Btu per hour do	56.8	52.1	32.8	31.2
35852 65	42,000 to 64,999 Btu per hour do	36.5	50.2	21.5	30.6
35852 66	65,000 Btu per hour or more do	9.3	33.1	7.8	30.1
	Split system:				
35852 67	Less than 27,000 Btu per hour thousands	294.2	138.9	119.6	59.8
35852 68	27,000 to 41,999 Btu per hour do	329.3	208.0	154.4	102.7
35852 69	42,000 to 64,999 Btu per hour do	108.1	94.9	48.9	51.1
35852 70	65,000 Btu per hour or more do	6.7	16.2	4.9	11.7
35852 71	Water source heat pumps (except room air-conditioners) do	142.0	113.2	86.1	68.1
	Split system air-conditioning condensing units:				
35852 72	Less than 22,000 Btu per hour thousands	257.9	74.4	211.1	57.9
35852 73	22,000 to 26,999 Btu per hour do	501.2	164.3	269.0	81.9
35852 74	27,000 to 32,999 Btu per hour do	464.4	188.5	213.9	87.0
35852 75	33,000 to 38,999 Btu per hour do	511.1	244.1	246.8	122.8
35852 76	39,000 to 43,999 Btu per hour do	185.9	101.8	79.6	46.8
35852 77	44,000 to 53,999 Btu per hour do	204.8	129.4	98.9	69.1
35852 78	54,000 to 64,999 Btu per hour do	167.6	122.8	92.9	78.1
35852 79	65,000 to 96,999 Btu per hour do	15.0	21.7	14.6	21.5
35852 80	97,000 to 134,999 Btu per hour do	11.3	22.3	10.1	19.4
35852 81	135,000 to 184,999 Btu per hour do	7.0	19.3	6.2	17.6
35852 82	185,000 to 249,000 Btu per hour do	2.1	8.4	2.5	9.9
35852 83	250,000 to 319,999 Btu per hour do	1.2	5.7	1.2	5.9
35852 84	320,000 to 379,999 Btu per hour do	1.1	6.2	.9	5.2
35852 85	380,000 to 539,999 Btu per hour do	.7	3.5	.8	6.1
35852 86	540,000 to 639,999 Btu per hour do	.5	4.7	.5	4.6
35852 87	640,000 Btu per hour or more do	.8	11.8	.7	9.8
	Split system air conditioning coils:				
35852 88	With blower thousands	682.1	223.2	550.9	148.7
35852 89	Without blower do	1 016.6	128.0	614.3	71.8
35853 43	Mechanical drinking water coolers thousands	740.6	150.0	355.4	87.8
35854 —	Compressors and compressing units <sup>4</sup> s	(X)	2 300.2	(X)	1 711.8
	All refrigerants, except ammonia:				
	Hermetic-type motor compressors 10 hp or less				
35854 11	Less than 3 hp thousands	10 236.1	699.5	8 648.2	588.8
35854 23	3 to 10 hp do	3 015.9	501.3	1 731.0	357.8
35854 76	Open-type compressors (with/without motors) 10 hp or less do	(NA)	(NA)	11.9	4.1
	Hermetic and open-type compressors more than 10 hp:				
35854 30	15 hp thousands	30.5	26.6	27.2	20.2
35854 32	20 hp do	22.3	22.8	19.2	18.1
35854 34	25 hp do	14.3	18.4	11.1	12.9
35854 36	30 hp do	14.2	19.1	13.9	16.0
35854 38	40 hp do	11.4	20.5	11.0	17.4
35854 40	50 hp do	2.3	6.9	2.5	5.8
35854 42	60 hp do	2.6	6.1	1.9	6.0
35854 46	75 hp do	1.8	7.5	2.2	8.4
35854 48	100 hp do	2.5	11.1	1.5	5.9
35854 50	More than 100 hp do	1.3	17.4	2.1	17.6
35854 53	Automatic air-conditioning compressors (open-type, with or without motor) thousands	9 800.5	865.0	6 946.2	592.6
35854 54	Screw type do			2.6	13.6

See footnotes at end of table.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982—Con.

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987 product shipments		1982 product shipments	
		Quantity	Value (million dollars)	Quantity	Value (million dollars)
<b>MA35M, AIR-CONDITIONING AND REFRIGERATION EQUIPMENT—Con.</b>					
35854 —	Compressors and compressing units <sup>4</sup> <sup>5</sup> —Con.				
	Ammonia refrigerants:				
35854 56	Less than 75 hp	thousands	.3	3.4	.4
35854 58	75 hp	do	.1	1.7	.1
35854 60	100 hp	do			
35854 62	101 to 200 hp	do	1.5	41.3	1.0
35854 64	201 hp or more	do			21.2
35855 —	Condensing units, refrigeration (complete).				
35855 01	Air cooled open-type less than 15 hp	thousands	(X)	232.9	(X)
	Air-cooled hermetic-type:		(D)	(D)	1.8
35855 02	1/8 hp and under	thousands			(6)
35855 03	1/6 hp	do			(6)
35855 04	1/5 hp	do			(6)
35855 15	1/4 hp	do			(6)
35855 16	1/3 hp	do			(6)
35855 17	1/2 hp	do	367.8	92.2	6171.8
35855 20	3/4 hp	do			619.2
35855 22	1 hp	do			7100.1
35855 25	1-1/2 hp	do			719.8
35855 27	2 hp	do			23.7
35855 29	2-1/2 hp	do			16.4
35855 30	3 hp	do	14.8	18.9	9.8
35855 32	More than 3 hp but less than 15 hp	do	22.8	57.3	16.4
35855 42	Water-cooled open-type 10 hp or less	thousands	(NA)	(NA)	22.4
	Water-cooled hermetic-type:				.3
35855 45	1-1/2 hp or less	thousands			812.4
35855 46	2 hp	do			.3
35855 47	3 hp	do			12.3
35855 48	4 hp	do	11.7	7.1	12.3
35855 49	5 hp	do			12.3
35855 50	7-1/2 hp	do			.6
35855 51	10 hp	do			.6
	Water or air-cooled (open-type and hermetic-type):				.7
35855 61	15 hp	thousands	2.1	20.3	2.5
35855 62	20 hp	do	1.1	8.1	1.0
35855 63	25 hp	do	.7	7.3	.5
35855 64	30 hp	do	.5	5.5	.5
35855 70	40 hp or more	do	.7	14.0	1.0
35856 —	Room air conditioners and dehumidifiers				
35856 11	Electrically operated dehumidifiers, mechanically refrigerated, self contained		(X)	895.1	(X)
	Room air conditioners:		(X)	85.7	(X)
35856 31	5,999 Btu/hr or less	thousands	861.8	147.5	635.0
	6,000 to 6,999 Btu/hr:				109.3
35856 33	7-1/2 amp 115 volts	thousands	244.0	51.7	115.3
35856 35	All other	do			25.5
	7,000 to 7,999 Btu/hr:				
35856 37	7-1/2 amp 115 volts	thousands	240.8	55.1	162.4
35856 39	All other	do			38.1
	8,000 to 8,999 Btu/hr:				17.2
35856 41	115 volts	thousands	262.0	64.3	128.4
35856 43	208 to 230 volts	do			8.0
	9,000 to 9,999 Btu/hr:				2.0
35856 45	115 volts	thousands	78.0	21.1	84.4
35856 47	208 to 230 volts	do	70.3	19.5	88.6
	10,000 to 10,999 Btu/hr:				24.4
35856 51	115 volts	thousands	173.6	46.7	140.4
35856 53	208 to 230 volts	do	29.6	9.7	30.1
	11,000 to 12,999 Btu/hr:				37.8
35856 55	115 volts	thousands	311.5	82.9	180.6
35856 57	208 to 230 volts	do	127.3	37.2	150.8
35856 61	13,000 to 14,999 Btu/hr	do	106.3	34.3	166.8
35856 63	15,000 to 16,999 Btu/hr	do	51.9	18.7	73.2
35856 65	17,000 to 19,999 Btu/hr	do	333.8	105.7	535.1
35856 67	20,000 to 22,999 Btu/hr	do	72.6	25.9	108.0
35856 68	23,000 to 25,999 Btu/hr	do	109.3	42.2	139.2
35856 69	26,000 Btu/hr or more	do	53.3	47.0	61.0
3585C pt	Nonelectric warm air furnaces and humidifiers		(X)	794.9	(NA)
	Nonelectric warm air furnaces:				(NA)
	Forced air:				
3585C 03	Solid fuel (coal, coke, and wood)	thousands	2.3	3.0	8.9
	Oil:				7.4
3585C 04	150,000 Btu bonnet output or less	thousands	151.1	85.1	97.5
3585C 05	150,001 to 4,000 Btu bonnet output	do	8.6	7.5	10.8
3585C 06	More than 400,000 Btu bonnet output	do	.4	2.0	.8
	Gas:				6.0
3585C 07	150,000 Btu bonnet output or less	thousands	1 708.6	601.6	1 132.0
3585C 08	150,001 to 400,000 Btu bonnet output	do	53.0	27.2	8.9
3585C 09	400,000 Btu bonnet output or more	do	1.8	24.2	1.4
3585C 15	Gravity air flow (cast-iron and steel)	do	1.6	.3	4.8
3585C 20	Humidifiers (attachments to warm air furnaces) all types including central systems and self-contained	do	454.3	44.0	(X)
					27.0
<b>MA35U, COIN-OPERATED VENDING MACHINES</b>					
35811 —	Automatic merchandising (vending) machines, coin-operated	thousands	722.6	521.1	(X)
	Beverage vending machines:				318.9
	Hot beverage <sup>10</sup>				
35811 01	Instant, freeze-dried, or liquid concentrate:				
35811 03	Nonoffice type	thousands	3.2	5.0	7.2
35811 04	Office type	do			6.5
	Fresh brew, coffee, and combinations	do	13.1	27.0	13.9

See footnotes at end of table.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982—Con.

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987 product shipments		1982 product shipments	
		Quantity	Value (million dollars)	Quantity	Value (million dollars)
	<b>MA35U, COIN-OPERATED VENDING MACHINES</b> —Con.				
35811 05	Beverage vending machines—Con.				
35811 07	Soft drink:				
35811 09	Canned beverage (refrigerated) vending machines <sup>11</sup> thousands	221.6	273.7	<sup>(12)</sup> 1210.3	<sup>(12)</sup> 12190.1
35811 06	Bottle vending machines do			(D)	(D)
35811 19	Cup (postmix) do	1.3	2.8	1.4	3.0
35811 21	Package milk and juice (indoor) do	—	—	(D)	(D)
35811 22	Other vending machines for beverages <sup>13</sup> do	—	—		
35811 23	Confections and food vending machines:				
35811 24	Bulk confection and charms thousands	91.1	4.6	38.3	2.0
35811 25	Candy bar, cookie, and cracker do	(14)	(14)	8.7	8.6
35811 27	Hot canned food and soup do	—	—	1.9	2.7
35811 28	Ice cream and frozen ices do	(14)	(14)	(14)	(14)
35811 29	Multipurpose food and confections do	(14)	(14)	(15)	(15)
35811 31	Pastry do	—	—	.3	.4
35811 32	Bagged snack/chip do	43.0	80.7	27.4	40.0
35811 33	Other vending machines for confections and foods, including bulk popcorn do	1429.5	1456.5	154.7	1516.2
35811 35	Other vending machines:				
35811 49	Cigarettes thousands	3.9	4.6	10.5	9.5
35811 32	Water and ice in bulk do	—	—	.3	1.5
35811 33	Ice, prebagged do	(16)	(16)		
35811 35	Postage stamp do	17.6	3.0	5.9	1.4
35811 49	All other vending machines <sup>17</sup> do	1629.8	1663.1	179.0	23.2

<sup>11</sup>Data for product code 3585C 62 are combined with product code 3585C 67 to avoid disclosing data for individual companies.

<sup>12</sup>Defined as factory selected combinations of heating and cooling components or assemblies intended to serve an individual room.

<sup>13</sup>Figures exclude systems assembled from purchased components and installed at passenger automobile assembly lines. Values are understated for some systems because of the exclusion of compressors.

<sup>14</sup>Represents only those compressors and compressor units produced and shipped separately, including interplant transfers.

<sup>15</sup>Includes units shipped for household refrigerators.

<sup>16</sup>For 1982, data for product codes 35855 02, 35855 03, 35855 04, and 35855 15 were combined with product code 35855 16 to avoid disclosing data for individual companies.

<sup>17</sup>For 1982, data for product code 35855 17 were combined with product code 35855 20 to avoid disclosing data for individual companies.

<sup>18</sup>For 1982, data for product code 35855 29 were combined with product code 35855 30 to avoid disclosing data for individual companies.

<sup>19</sup>For 1982, data for product code 35855 48 were combined with product code 35855 49 to avoid disclosing data for individual companies.

<sup>20</sup>Primarily coffee vending machines though they may also vend hot chocolate and/or hot soup from same cabinet.

<sup>21</sup>Some vending machines designed and sold to handle canned beverages are also adaptable to bottled soft drinks through the use of a conversion kit.

<sup>22</sup>For 1982, data for product code 35811 05 were combined with product code 35811 07 to avoid disclosing data for individual companies.

<sup>23</sup>Some vending machines designed and sold to handle bottled soft drinks are also adaptable to canned beverages through the use of a conversion kit.

<sup>24</sup>For 1987, data for product codes 35811 22, 35811 24, and 35811 25 are combined with product code 35811 29 to avoid disclosing data for individual companies.

<sup>25</sup>For 1982, data for product code 35811 25 were combined with product code 35811 29 to avoid disclosing data for individual companies.

<sup>26</sup>For 1987, data for product code 35811 33 are combined with product code 35811 49 to avoid disclosing data for individual companies.

<sup>27</sup>Includes vending machines for such products as aspirin, cigars, combs, cosmetics, pencils, paper, and newspapers. Included are multipurpose machines for nonfood and nonbeverage items.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1987 and 1982

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1987. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

Product class and geographic area	1987 value of product shipments	1982 value of product shipments	Product class and geographic area	1987 value of product shipments	1982 value of product shipments
<b>35811, AUTOMATIC MERCHANDISING MACHINES</b>			<b>35852, UNITARY AIR-CONDITIONERS</b>		
United States	502.1	334.1	United States	3 449.0	1 972.1
Illinois	13.7	9.5	Minnesota	82.3	38.3
<b>35851, HEAT TRANSFER EQUIPMENT</b>			Ohio	481.6	192.2
United States	3 692.5	2 908.0	Tennessee	929.3	564.8
Alabama	26.3	(NA)	Texas	541.8	261.8
California	255.3	53.6	Virginia	22.6	15.1
Illinois	219.7	165.6	<b>35853, COMMERCIAL REFRIGERATORS AND RELATED EQUIPMENT</b>		
Indiana	51.7	6.0	United States	1 768.9	1 070.8
Kentucky	208.2	168.7	California	113.5	84.6
Maryland	29.4	33.0	Florida	37.0	24.6
Michigan	39.6	61.7	Illinois	108.0	46.8
Minnesota	152.6	113.6	Indiana	46.7	9.9
Missouri	27.5	(NA)	Michigan	88.0	42.0
New Jersey	35.6	31.7	Minnesota	97.6	(NA)
North Carolina	31.3	(NA)	Mississippi	54.3	28.3
Pennsylvania	162.2	162.2	New Jersey	92.8	(NA)
Tennessee	90.9	71.4	New York	93.7	79.5
Texas	394.3	220.7	North Carolina	39.9	29.8
Virginia	62.8	61.2	Oklahoma	7.1	(NA)
			Pennsylvania	162.1	114.9
			Texas	120.4	43.5
			Virginia	10.0	(NA)
			Wisconsin	171.4	92.5

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1987 and 1982—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1987. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

Product class and geographic area	1987 value of product shipments	1982 value of product shipments	Product class and geographic area	1987 value of product shipments	1982 value of product shipments
<b>35854, COMPRESSORS AND COMPRESSOR UNITS, ALL REFRIGERANTS</b>			<b>3585D, PARTS FOR REFRIGERATION AND HEATING EQUIPMENT—Con.</b>		
United States	2 317.4	1 734.7	Missouri	54.3	(NA)
Ohio	802.3	731.0	New Jersey	13.2	(NA)
			New York	106.9	(NA)
			Ohio	106.3	(NA)
			Pennsylvania	34.4	(NA)
<b>35855, REFRIGERATION CONDENSING UNITS (COMPLETE)</b>			Tennessee	68.8	(NA)
United States	241.1	196.9	Texas	112.5	(NA)
California	10.3	9.7	Wisconsin	67.4	(NA)
Texas	17.3	6.0			
<b>35856, ROOM AIR-CONDITIONERS AND DEHUMIDIFIERS</b>			<b>35891, COMMERCIAL COOKING AND FOOD WARMING EQUIPMENT</b>		
United States	909.7	(NA)	United States	1 092.1	609.0
Tennessee	325.5	(NA)	California	124.6	93.4
			Illinois	216.2	120.2
			Missouri	43.2	23.4
			New Jersey	15.5	13.1
			New York	34.7	(NA)
			North Carolina	35.8	(NA)
			Ohio	81.4	52.3
			Tennessee	32.2	(NA)
			Texas	12.8	4.5
			Wisconsin	58.3	25.8
<b>35859, REFRIGERATION AND AIR-CONDITIONING EQUIPMENT, N.E.C.</b>					
United States	443.7	428.9	<b>35892, SERVICE INDUSTRY MACHINES, N.E.C., AND PARTS</b>		
Arizona	45.2	(NA)	United States	2 138.1	1 568.4
California	23.8	38.0	Alabama	53.6	27.3
Minnesota	7.1	10.0	Arizona	24.3	14.2
Ohio	13.2	6.6	California	217.0	188.3
Pennsylvania	16.6	16.4	Colorado	17.1	25.9
Texas	43.1	46.3	Connecticut	16.8	13.7
Wisconsin	11.9	(NA)	Florida	82.6	37.2
			Illinois	268.8	262.9
<b>3585C, WARM AIR FURNACES, HUMIDIFIERS, AND ELECTRIC COMFORT HEATING EQUIPMENT</b>			Indiana	21.7	16.0
United States	883.5	520.3	Iowa	39.3	28.7
Michigan	10.4	(NA)	Massachusetts	19.4	21.1
Minnesota	15.0	(NA)			
Missouri	20.5	(NA)	Michigan	142.1	66.3
Ohio	86.7	(NA)	Minnesota	273.8	115.5
Tennessee	162.8	59.4	Missouri	14.2	6.9
			New Jersey	69.9	123.6
<b>3585D, PARTS FOR REFRIGERATION AND HEATING EQUIPMENT</b>			New York	61.9	35.8
United States	1 153.9	(NA)	North Carolina	49.4	22.8
Alabama	22.2	(NA)	Ohio	153.7	100.7
Arkansas	41.7	(NA)	Oregon	38.4	(NA)
California	25.9	(NA)	Pennsylvania	97.8	110.8
Connecticut	15.6	(NA)	South Carolina	39.7	(NA)
Florida	10.7	(NA)	Tennessee	40.2	12.2
			Texas	91.2	47.5
			Washington	2.2	(NA)
			Wisconsin	153.3	132.0
Illinois	24.6	(NA)	<b>35893, COMMERCIAL AND INDUSTRIAL VACUUM CLEANERS</b>		
Iowa	21.5	(NA)	Illinois	49.0	18.4
Massachusetts	11.0	(NA)	Michigan	67.3	(NA)
Michigan	45.7	(NA)	New Jersey	3.7	2.3
Minnesota	12.8	(NA)	New York	7.7	10.4
			Ohio	29.2	19.0

**Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1987 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

1987 product code	Product class	1987	1986 <sup>1</sup>	1985 <sup>1</sup>	1984 <sup>1</sup>	1983 <sup>1</sup>	1982	1977	1972
3581-	<b>Automatic merchandising vending machines</b>	695.2	637.9	619.4	557.2	550.8	445.7	396.2	306.3
35811	Automatic merchandising machines	502.1	454.9	439.6	391.1	383.2	334.1	294.9	231.5
35812	Coin-operated mechanisms and parts for automatic merchandising machines	161.9	167.9	164.3	143.0	152.0	96.2	84.3	61.1
35810	Automatic merchandising machines, n.s.k.	31.2	15.0	15.5	23.1	15.6	15.5	17.0	13.7
3582-	<b>Commercial laundry equipment</b>	433.3	384.1	379.6	369.2	344.6	338.7	233.6	185.3
35820	Commercial laundry	433.3	384.1	379.6	369.2	344.6	338.7	233.6	185.3
3585-	<b>Refrigeration and heating equipment</b>	15 329.0	14 632.2	14 669.9	14 575.5	12 200.8	11 150.7	(NA)	(NA)
35851	Heat transfer equipment	3 692.5	3 462.9	3 753.8	3 552.5	3 213.3	2 908.0	2 251.2	1 680.5
35852	Unitary air-conditioners	3 449.0	3 320.4	3 112.4	3 080.9	2 506.4	1 972.1	1 673.0	1 070.6
35853	Commercial refrigerators and related equipment	1 768.9	1 668.8	1 601.7	1 489.9	1 259.6	1 070.8	759.4	482.3
35854	Compressors and compressor units, all refrigerants	2 317.4	2 257.6	2 106.6	2 257.4	2 065.1	1 734.7	1 580.3	1 065.4
35855	Refrigeration condensing units (complete)	241.1	243.2	224.9	223.5	238.8	196.9	175.6	146.8
35856	Room air-conditioners and dehumidifiers	909.7	776.5	965.3	970.9	609.3	897.5	720.4	679.6
35859	Refrigeration and air-conditioning equipment, n.e.c.	443.7	627.2	632.5	609.2	392.9	428.9	(NA)	(NA)
3585C	Warm air furnaces, humidifiers, and electric comfort heating equipment	883.5	949.5	881.0	845.6	700.9	520.3	(NA)	(NA)
3585D	Parts for refrigeration and heating equipment	1 153.9	<sup>21</sup> 037.6	<sup>21</sup> 142.2	<sup>21</sup> 285.6	<sup>28</sup> 91.7	893.0	(NA)	(NA)
35850	Refrigeration and heating equipment, n.s.k.	469.3	288.5	249.5	260.0	322.8	528.5	251.3	152.4
3586-	<b>Measuring and dispensing pumps</b>	916.7	783.7	731.2	743.4	577.5	590.7	265.6	183.4
35860	Measuring and dispensing pumps	916.7	783.7	731.2	743.4	577.5	590.7	265.6	183.4
3589-	<b>Service industry machinery, n.e.c.</b>	3 926.3	3 207.4	3 048.8	2 885.1	2 538.9	2 550.4	1 687.6	864.4
35891	Commercial cooking and food warming equipment	1 092.1	924.2	936.0	803.9	641.4	609.0	386.0	217.0
35892	Service industry machines, n.e.c., and parts	2 138.1	1 863.0	1 719.9	1 605.0	1 446.8	1 568.4	1 059.2	496.5
35893	Commercial and industrial vacuum cleaners	271.6	279.5	261.3	263.5	247.5	192.9	109.4	62.7
35890	Service industry machinery, n.e.c., n.s.k.	424.4	140.7	131.7	212.8	203.2	180.1	132.9	88.2

<sup>1</sup>Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

<sup>2</sup>Data exclude parts for electric comfort heating equipment which accounted for approximately two percent of this product class in 1982.

**Table 7. Materials Consumed by Kind: 1987 and 1982**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
	<b>INDUSTRY 3581, AUTOMATIC VENDING MACHINES</b>				
	Materials, parts, containers, and supplies	(X)	355.8	(X)	250.1
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes	1,000 s tons	*2.1	.9	*3.8
331012	Sheet and strip	do	(S)	27.5	*46.5
331058	All other carbon steel mill shapes and forms	do	(D)	( <sup>3</sup> )	(S)
331031	Stainless steel	do	(S)	2.4	1.0
335001	Aluminum and aluminum-base alloy mill shapes and forms	mil lb	*1.4	2.4	1.0
	Fractional horsepower electric motors and generators (less than 1 hp):				
362110	Timing motors, synchronous and subsynchronous	thousands	(S)	5.0	(S)
362115	Other fractional horsepower electric motors, excluding timing motors	do	*2 927.7	20.9	*724.1
358501	Compressors, compressor units, condensing units, fin coils, and other heat transfer equipment				
305201	Rubber and plastics hose and belting		(X)	16.7	(X)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes		(X)	.9	(X)
345001	Bolts, nuts, screws, rivets, and screw machine products		(X)	19.3	(X)
364300	Current-carrying wiring devices		(X)	24.5	(X)
346901	Metal stampings	1,000 s tons	(S)	11.6	(X)
244021	Wooden boxes, skids, pallets, and containers (including combination of wood and paperboard)		(X)	6.5	(NA)
260091	Paper and paperboard containers (including shipping sacks and other paper packing supplies)		(X)	1.4	.5
970099	All other materials and components, parts, containers, and supplies		(X)	3.0	(X)
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>		(X)	<sup>3</sup> 170.2	102.3
			(X)	42.6	49.1

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT</b>					
	Materials, parts, containers, and supplies -----	(X)	187.4	(X)	132.4
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons	(S)	3.0	(S)	1.2
331012	Sheet and strip ----- do	(S)	14.7	(S)	5.9
331013	Plates ----- do	*7.5	3.4	**3.5	1.4
331006	All other carbon steel mill shapes and forms ----- do	(S)	4.4	(S)	3.4
331031	Stainless steel mill shapes and forms ----- do	(S)	11.2	(S)	(*)
335001	Aluminum and aluminum-base alloy mill shapes and forms ----- mil lb	(S)	1.6	(S)	1.2
	Castings (rough and semifinished):				
332001	Iron (gray and malleable) and steel castings ----- 1,000 s tons	(S)	1.9	(S)	
336002	Other nonferrous ----- mil lb	(S)	1.7	(S)	5.8
	Electric motors and generators:				
362115	Fractional horsepower electric motors, excluding timing motors ----- thousands	(S)	5.3	(S)	4.1
362120	Integral horsepower motors and generators (1 hp or more) ----- do	(S)	6.7	(S)	5.3
305201	Rubber and plastics hose and belting -----	(X)	5.4	(X)	1.0
356810	Plain bearings and bushings -----	(X)	4.4	(X)	1.9
356601	Speed changers, drives, and gears -----	(X)	4.1	(X)	1.0
345001	Bolts, nuts, screws, rivets, and screw machine products -----	(X)	2.5	(X)	1.5
364300	Current-carrying wiring devices -----	(X)	7.9	(X)	1.0
360101	Electrical transmission, distribution, and control equipment -----	(X)	14.3	(X)	3.9
346901	Metal stampings -----	(X)	4.4	(X)	1.1
349402	Fabricated metal pipe, valves, and pipe fittings, except plumbers' fittings -----	(X)	6.6	(X)	2.1
244021	Wooden boxes, skids, pallets, and containers (including combination of wood and paperboard) -----	(X)	2.7	(X)	1.2
970099	All other materials and components, parts, containers, and supplies -----	(X)	33.5	(X)	45.0
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup> -----	(X)	47.7	(X)	44.4
<b>INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT</b>					
	Materials, parts, containers, and supplies -----	(X)	8 299.1	(X)	5 555.6
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons	**100.1	45.6	**56.7	33.2
331012	Sheet and strip ----- do	*718.6	423.7	(S)	328.4
331013	Plates ----- do	(S)	33.0	**42.0	23.0
331015	Structural shapes ----- do	(S)	11.4	(S)	6.9
331017	Wire and wire products ----- do	(S)	21.3	(S)	10.6
331019	All other carbon steel mill shapes and forms ----- do	**84.6	47.6	(S)	37.4
331020	Alloy steel, except stainless ----- do	*32.7	27.0	*31.2	12.4
	Stainless steel:				
331033	Sheet and strip ----- 1,000 s tons	(S)	88.0	(S)	51.2
331050	All other stainless steel mill shapes and forms ----- do	(S)	16.5	(S)	11.2
	Copper and copper-base alloy:				
335728	Bare wire for electrical conduction ----- mil lb	**3.3	6.6	(S)	11.2
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ----- do	(S)	3.7	(S)	17.3
335143	Plate, sheet, and strip, including military cups and discs ----- do	95.2	90.0	61.6	56.0
335152	Pipe and tube ----- do	*186.9	242.3	(S)	170.5
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ----- mil lb	*321.0	352.1	(S)	207.0
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ----- do	65.2	97.9	(S)	72.1
335008	All other aluminum mill shapes and forms, (wire, rolled rod and bar, powder, welded tubing, etc.) ----- do	**27.4	20.4	(S)	25.8
335791	Insulated copper wire and cable (except magnet wire) ----- do	(S)	6.8	(S)	4.7
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) ----- 1,000 s tons	(S)	128.5	(S)	109.2
332045	Steel ----- do	(S)	10.4	*10.8	9.6
336005	Aluminum and aluminum-base alloy ----- mil lb	121.7	149.2	*58.0	81.6
336006	Copper and copper-base alloy ----- do	9.7	9.1	(S)	11.2
336008	Other nonferrous ----- do	2.4	1.7	*4.9	2.0
339915	Metal powders ----- do	(S)	10.4	**8.6	8.7
346200	Iron and steel forgings ----- 1,000 s tons	(S)	27.0	*16.3	25.3
358501	Compressors, compressors units, fin coils, and other heat transfer equipment -----	(X)	1 144.4	(X)	660.9
	Electric motors and generators:				
362110	Fractional horsepower electric motors (less than 1 hp):				
362115	Timing motors, synchronous and subsynchronous ----- thousands	(S)	52.8	(S)	45.6
362120	Fractional horsepower electric motors, excluding timing motors ----- do	**30 350.0	458.3	*20 161.1	346.1
	Integral horsepower motors and generators (1 hp or more) ----- do	*9 710.7	298.0	(S)	213.3
	Bearings, including mounted and unmounted:				
356218	Ball -----	(X)	63.2	(X)	35.4
356201	Roller -----	(X)	2.6	(X)	25.5
260091	Paper and paperboard containers -----	(X)	96.5	(X)	53.0
242101	Rough and dressed lumber ----- mil bd ft	(S)	19.8	(S)	17.1
244021	Wooden containers, complete, including combination wood and paperboard -----	(X)	44.5	(X)	14.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes ----- mil lb	*97.8	46.9	76.3	37.7

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT—Con.</b>					
285101	Paints, varnishes, lacquers, shellacs, japsans, and enamels	(X)	52.3	(X)	29.2
286903	Refrigerant gases and other synthetic organic chemicals	(X)	48.3	(X)	43.7
305201	Rubber and plastics hose and belting	(X)	62.8	(X)	20.7
308006	Fabricated plastics products, except gaskets, hose, and belting	(X)	144.2	(X)	54.4
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	48.1	(X)	31.5
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	25.4	(X)	20.8
329300	Gaskets, all types, and asbestos packing	(X)	52.9	(X)	13.4
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	(X)	45.9	(X)	19.4
342903	Metal hardware, including hinges, handles, locks, casters, etc.	(X)	35.1	(X)	22.0
345001	Bolts, nuts, screws, rivets, washers, and screw machine products	(X)	151.9	(X)	94.7
346901	Metal stampings	(X)	215.7	(X)	142.2
349402	Fabricated metal pipe, valves, and pipe fittings	(X)	157.8	(X)	58.7
356401	Fans and blowers	(X)	122.2	(X)	79.3
360101	Electrical transmission, distribution, and control equipment	(X)	255.9	(X)	182.4
364300	Current-carrying wiring devices	(X)	103.9	(X)	78.4
382201	Automatic temperature controls, thermostats, regulators, etc.	(X)	261.5	(X)	133.5
970099	All other materials and components, parts, containers, and supplies	(X)	1,526.2	(X)	963.7
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	891.8	(X)	792.4
<b>INDUSTRY 3586, MEASURING AND DISPENSING PUMPS</b>					
Materials, parts, containers, and supplies					
		(X)	426.5	(X)	267.4
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes	1,000 s tons	(S)	3.9	(S)
331012	Sheet and strip	do	(S)	7.4	(S)
331013	Plates	do	(S)	(S)	8.4
331015	Structural shapes	do	(S)	(S)	1.1
331055	All other	do	55.5	(S)	2.8
Alloy steel, except stainless:					
331021	Bars and bar shapes	1,000 s tons	(S)	.5	(S)
331029	All other alloy steel mill shapes and forms	do	(S)	2.1	-.2
Stainless steel:					
331033	Sheet and strip	1,000 s tons	(S)	*1.7	5.4
331050	All other stainless steel mill shapes and forms	do	(S)	3.6	(S)
Copper and copper-base alloy:					
335102	Rod, bar, and mechanical wire, including extruded rod, bar, pipe, tube, etc.	mil lb	(S)	3.4	(D)
335143	Plate, sheet, and strip, including military cups and discs	do	(S)	(D)	(S)
335152	Pipe and tube	do	(S)	(Z)	(Z)
Aluminum and aluminum-base alloy:					
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	mil lb	(S)	5.0	(S)
335007	All other (sheet, plate, foil, wire, rolled rod and bar, powder, welded tubing, etc.)	do	(S)	.1	.2
335609	Nonferrous metal mill shapes and forms, except copper and aluminum	1,000 s tons	(S)	(Z)	(D)
Primary metals:					
331051	Pig iron, excluding silvery iron	1,000 s tons	-	-	-
333122	Copper and copper-base alloy refinery shapes	do	-	-	-
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content)	mil lb	(S)	(7)	**.1
339915	Metal powders	do	-	-	.2
190023	Iron and steel scrap, excluding home scrap	1,000 s tons	-	-	(Z)
Castings (rough and semifinished):					
332011	Iron (gray and malleable)	1,000 s tons	(S)	10.6	(S)
332045	Steel	do	(D)	(7)	(D)
336005	Aluminum and aluminum-base alloy	mil lb	(S)	13.4	(S)
336006	Copper and copper-base alloy	do	(S)	2.1	(D)
336008	Other nonferrous	do	(S)	2.8	(S)
346200	Iron and steel forgings	1,000 s tons	(D)	(7)	(Z)
346701	Metal stampings	do	(S)	(7)	(S)
Engines:					
351920	Diesel and semidiesel	thousands	-	-	-
351901	Gasoline and other carburetor engines	do	(D)	(7)	-
Electric motors and generators:					
362115	Fractional horsepower electric motors (less than 1 hp), excluding timing motors	thousands	(S)	5.9	*645.0
362120	Integral horsepower motors and generators (1 hp or more)	do	**11.9	2.5	(S)
Bearings, including mounted and unmounted:					
356218	Ball		(X)	1.8	(X)
356201	Roller		(X)	1.8	1.6
356810	Plain bearings and bushings		(X)	1.8	(X)
356601	Speed changers, drives, gears, industrial high-speed drivers		(X)	1.8	1.1
265001	Paperboard containers, boxes, and corrugated paperboard	1,000 s tons	(S)	3.4	(S)
305201	Rubber and plastics hose and belting	do	(X)	8.6	(X)
306902	Fabricated rubber products (except tires, tubes, belts, hosing, and gaskets)	do	(X)	3.9	(X)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3586, MEASURING AND DISPENSING PUMPS—Con.</b>					
308006	Fabricated plastics products (except gaskets, hose, and belting)	(X)	5.8	(X)	3.1
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	8.5	(X)	1.9
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	(X)	(7)	(X)	.6
349402	Fabricated metal pipe, valves, and pipe fittings	(X)	6.8	(X)	4.0
354501	Cutting tools for machine tools	(X)	1.8	(X)	.7
356101	Pumps and pump parts used as materials	(X)	19.7	(X)	3.0
356301	Air and gas compressors, except refrigeration	(Z)	(Z)	—	—
329300	Gaskets (all types) and asbestos packing	(X)	2.6	(X)	.5
360101	Electrical transmission, distribution, and control equipment	(X)	5.0	(X)	(6)
357001	Electronic computing equipment and parts	(X)	(7)	(X)	(6)
970099	All other materials and components, parts, containers, and supplies	(X)	7193.8	(X)	6151.2
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	92.7	(X)	25.4
<b>INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.</b>					
	Materials, parts, containers, and supplies	(X)	1 538.6	(X)	1 092.7
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes	1,000 s tons	(S)	8.6	7.7
331012	Sheet and strip	do	(S)	39.1	26.3
331013	Plates	do	(S)	20.0	13.0
331015	Structural shapes	do	(S)	11.0	22.1
331017	Wire and wire products	do	(S)	7.3	7.1
331019	All other carbon steel mill shapes and forms	do	(S)	5.7	4.6
331020	Alloy steel, except stainless	do	(S)	20.0	**5.5
Stainless steel:					
331033	Sheet and strip	1,000 s tons	**34.3	77.8	(S)
331050	All other stainless steel mill shapes and forms	do	(S)	17.8	(S)
Aluminum and aluminum-base alloy:					
335301	Sheet, plate, and foil	mil lb	(S)	17.4	(S)
335007	All other aluminum mill shapes and forms (extruded shapes, wire, rod, bar, powder, pipe, tubing, etc.)	do	(S)	.8	8.6
Castings (rough and semifinished):					
332011	Iron (gray and malleable)	1,000 s tons	(S)	15.3	(S)
332045	Steel	do	(S)	4.2	**3.5
336005	Aluminum and aluminum-base alloy	mil lb	(S)	10.7	(S)
336006	Copper and copper-base alloy	do	(S)	1.7	(S)
336008	Other nonferrous	do	(S)	3.0	(S)
Electric motors and generators:					
Fractional horsepower electric motors (less than 1 hp):					
362110	Timing motors, synchronous and subsynchronous	thousands	(S)	9.1	(S)
362115	Other fractional horsepower electric motors, excluding timing motors	do	(S)	19.9	(S)
362120	Integral horsepower motors and generators (1 hp or more)	do	(S)	30.6	(S)
356104	Pumps, complete assemblies (except fluid power)	do	(S)	25.6	(S)
358501	Compressors, compressor units, condensing units, fin coils, and other heat transfer equipment	do	(X)	14.7	(X)
335792	Insulated copper wire and cable, except magnet wire (quantity in copper content)	mil lb	(S)	7.4	(S)
305201	Rubber and plastics hose and belting	do	(X)	8.3	(X)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	do	(X)	25.2	(X)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	mil lb	**31.7	33.6	(S)
356810	Plain bearings and bushings	do	(X)	9.3	(X)
356601	Speed changers, drives, and gears	do	(X)	16.8	(X)
345001	Bolts, nuts, screws, rivets, and screw machine products	do	(X)	32.3	(X)
364300	Current-carrying wiring devices	do	(X)	16.8	(X)
360101	Electrical transmission, distribution, and control equipment	do	(X)	43.8	(X)
346901	Metal stampings	1,000 s tons	(S)	7.3	(NA)
349402	Fabricated metal pipe, valves, and pipe fittings, except plumbers' fittings	do	(X)	38.5	(X)
244021	Wooden boxes, skids, pallets, and containers (including combination of wood and paperboard)	do	(X)	9.8	(X)
260091	Paper and paperboard containers (including shipping sacks and other paper packing supplies)	do	(X)	17.9	(X)
970099	All other materials and components, parts, containers, and supplies	do	(X)	448.7	(X)
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	do	(X)	453.6	(X)

<sup>1</sup>For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>2</sup>Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

<sup>3</sup>For 1987, data for material code 330158 are combined with material code 970099 to avoid disclosing data for individual companies.

<sup>4</sup>For 1982, data for material code 331031 were not available separately but were included with material code 970099.

<sup>5</sup>For 1987, data for material codes 331013 and 331015 are combined with material code 331055 to avoid disclosing data for individual companies.

<sup>6</sup>For 1982, data for material codes 335102, 335143, 335609, 332045, 336066, 360101, and 357001 were combined with material code 970099.

<sup>7</sup>For 1987, data for material codes 332045, 335792, 344301, 346200, 346701, 351901, and 357001 are included with material code 970099 to avoid disclosing data for individual companies.



## APPENDIX A. Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

### SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

**Number of establishments and companies**—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the General Summary subject report.

**Employment and related items**—The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

**All employees**—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods.

Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

**Production workers**—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

**All other employees**—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual

industries shown in this report. They are included in the general summary and geographic area reports as a separate category.

**Payroll**—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1987. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

**Production-worker hours**—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

**Cost of materials**—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by

others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

**Specific materials consumed**—In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the introduction for the importance of administrative records in the industry.)

**Value of shipments**—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

**Individual products**—As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1987 census program, information was collected on the output of approximately 11,000 individual product items. The term "product", as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 terms; whereas, "motor gasoline" was reported as a single item.

Approximately 6,600 of the product items were listed separately on the 1987 census report forms. Data for

about 4,400 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1987 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a-2).

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1982 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

**Classes of products**—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1987 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

**Duplication in cost of materials and value of shipments**—The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the

addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the United States level and beginning in 1964, for all geographic levels.

**Value added by manufacture**—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

**New and used capital expenditures**—For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases, new facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

**End-of-year inventories**—Respondents were asked to report their 1986 and 1987 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

## SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

- 1. Supplemental labor costs**—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not

Because of this change in reporting instructions, the 1982 through 1987 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing", which are aggregates of figures reported by establishments in specified industries.

**Specialization and coverage ratios**—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans.

They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

2. **Retirements of depreciable assets**—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1987. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.
3. **Depreciation charges for fixed assets**—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.
4. **Rental payments**—Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.
5. **Depreciable assets**—Total value of gross depreciable assets is collected on all census forms.

However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

6. **New and used capital expenditures**—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)
7. **Quantity of electric energy consumed for heat and power**—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the ASM forms. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
8. **Breakdown of new capital expenditures for machinery and equipment**—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement.

Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

9. **Foreign content of cost of materials**—Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.
10. **Cost of purchased services**—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding Census value for new capital expenditures for machinery and equipment to produce the estimates.

The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

For items 8 and 9, an adjustment ratio of the following form was computed.

$$R_j = \frac{NMC}{TMEasm}$$

where:

$NMC$  = the census value of new capital expenditures for machinery and equipment

$TMEasm$  = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the three types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

# APPENDIX B.

## Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

### DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 56,000 manufacturing establishments selected from a total of about 220,000 establishments. These 220,000 establishments represent all manufacturing establishments of multiunit companies and all single establishment companies mailed schedules in the 1982 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1982 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

The 1984 through 1988 ASM sample differs slightly from the previous sample. For the current panel, all establishments of companies with 1982 shipments in manufacturing in excess of \$500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 56,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1982 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1982 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other

general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1982 Census of Manufactures. Although this portion contained approximately 130,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

### DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1983-1986 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1982 census published number for an item total and the linear ASM estimate of the total for 1982. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1983-1986. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1987 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates, however, developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

## QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

# APPENDIX C.

## Changes in Census of Manufactures

### Product Classes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

1987	1982	1987	1982	1987	1982	1987	1982
30521	30411	30899 3089A	3079K pt	34919	34948	35483	36233
30522	30412	32295	32291 pt	34921	3494B	35484	35496
30523	30413	32296	32292 pt	34922	3494C	35485	35495 pt 35497
30524	30414	32297	32294 pt	34923	3494D	35533	35531 pt
30525	30415	32298	32291 pt 32292 pt 32294 pt	34924	3494E	35534	35532 pt
30526	30416			34925	3494F	35543	35541 35542 pt
30534	32934	32311	32317	34926	3494G	35544	35542 pt
30535	32935	32312	32317	34927	3494H	35558	35557 pt
30536	32936	32927	32928 32929	3523C	35234 pt 35237 35238 pt	35561	35511
30537	32937					35562	35512
30538	32938	32961	32963 32965	3523E	35234 pt 35238 pt	35563	35513 pt
30539	32939	32962	32964	3523F	3523A 3523B	35591	35591 35699 pt
30611	3069A pt	30612	3069A pt	35246	35243 35245	35596	35595 pt
30613	3069A pt	33152 34967				35597	35494
30614	3069B pt	33391	33331	3531A	35311		
30615	3069B pt	33392	33334	3531B	35312	35599	35595 pt 36260 36362
30616	3069B pt	33398	33321 33323 33399	3531C	35317		
30617	3069B pt	33561 33562	33569	3531E	35314 pt	35616	3561C
3069C	3069C 35557 pt	33563		3531F	35316	35631	35631 pt
3069E	30310	33630	33611	3531G	35318 pt	35651	35513 pt 35514 pt 35691 pt
30810	30792	33640	33620 pt 33691 pt 33692 pt 33693 pt	3531H	35313 pt 35318 pt 35319 pt	35652	35513 pt 35514 pt 35691 pt
30820	3079K pt			3531K	35319 pt 35361 pt 35371 pt	35676	35672
30830	3079K pt	33650	33612	3531M	35313 pt 35314 pt 35319 pt 35372 pt	35692	35694 35695 35696
30840	30794	33660	33620 pt			35697	35699 pt
30850	30795	33690	33691 pt 33692 pt 33693 pt	35337	35331 35332 pt	35698	
30861	30797	34234	34232 pt			35711	35731 36629 pt
30862		34235	34232 pt 35531 pt 35532 pt	35338	35332 pt		
30863				35339	35333	35712	35734 pt 35735 pt
30864				3533A	35335	35721	35732 pt
30865				3533B	35336	35722	35734 pt 35735 pt
30866				35363	35361 pt		
30870	3079K pt	34236	34233	35364	35362 pt	35751	35732 pt 36612 pt
30880	3079J pt 3079K pt	34441 34443	34446	35373	35362 pt 35371 pt	35752	35734 pt 35735 pt
30891	3079J pt 3079K pt	34447 34448 34449		35374	35362 pt 35372 pt	35771	35732 pt
30892	3079J pt 3079K pt	34461 34462 34463	34460	3541D	35411 35412	35772	35734 pt 35735 pt
30893	3079J pt 3079K pt	34464 34465		35430	35650	35781	35743
30894	3079J pt 3079K pt	34696 34699	34699	35454	35453	35782	35744
30895	3079J pt	34911 34912	3494A	35455	35452	35783	35745
30896	2499A pt 3079J pt 3079K pt	34913 34914 34915		35481	36231	3585C	3585A 36993
30897	3079J pt 3079K pt	34916		35482	36232	3585D	3585B 36994 pt
30898	3079J pt 3079K pt	34917	34949				
		34918	34947				

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

1987	1982	1987	1982	1987	1982	1987	1982
35931	35996 35997	36411	36410	36991—Con. 36995	36629 pt—Con.	38731—Con.	38734—Con. 38736 38737
35932	35998	36412	36994 pt	36997	35497 pt 36629 pt	39113 39114	39112
35933	35999	36520	36521 pt	36998	36994 pt		
35941	35617 35618 35631 pt	36613	35732 pt 36612 pt	3714A	37143	39153 39154	39151
35942	3561A 3561B 35631 pt	36614	36612 pt	37999	37994 37998	39447	36629 pt 39447
35961 35962 35963	35760	36631	36621 36629 pt	38121	38111	39493	39494 pt
36123 36126	36125	36632	36622	38122	36625 pt 36629	39495	3079k pt
36251	36138 pt 36794	36691	36624	38210	38112 38113 pt	39496	39494 pt
36252	36221	36692	36626	38260	38320 38326	39523	39521 39522 pt
36253	36222	36693	36628	38271	38324	39524	39522 pt
36254	36138 pt 36223	36714	36711 36712	38272	38325	39651	39630
36330	36331 36333	36715	36799 pt	38273		39654	39641
36395	36361 36394 36399	36720	36797	38295	36625 pt 38293	39656	39642
		36799	36629 pt 36799 pt	38296	38113 pt	39998	39620
		36950	35732 pt 36792	38440	36931	39999	39995
		36991	36629 pt	38450	36930 36933	97372	36522
		36992		38731	38734	97819	36521 pt

# APPENDIX D.

## Changes in Census of Manufactures

### Product Codes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published
30118 00	30118 00	30118 19 30118 20	30539 77	32939 77	32939 77	30830 11	30793 01	3079K 90	30892 20— Con.	3079D 33— Con.	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 93 pt
3011A 39	3011A 39	3011A 33 3011A 35	30539 79	32939 79	32939 79	30830 13	30793 03				
3011C 29	3011C 29	3011C 24 3011C 26 3011C 27	30539 81	32939 81	32939 81	30830 19	30793 09				
30521 00	30411 00	30411 00	30611 00	3069A 00	3069A 11	30840 11	30794 21	30794 21	30892 30	3079D 35	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 93 pt
30522 00	30412 00	30412 00	30612 00	3069A 00	3069A 12 3069A 15	30840 12	30794 22	30794 22			
30523 00	30413 00	30413 00	30613 00	3069A 00	3069A 13 3069A 14 3069A 16	30840 13	30794 23	30794 23			
30524 00	30414 00	30414 00	30614 00	3069B 00	3069B 11	30840 14	30794 24	30794 24	30892 90	3079D 39	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 93 pt
30525 00	30415 00	30415 00	30615 00	3069B 00	3069B 12 3069B 13 3069B 14 3069B19	30840 15	30794 25	30794 25			
30526 00	30416 00	30416 00	30616 00	3069B 00	3069B 21	30840 19	30794 26	30794 26			
30534 11	32934 11	32934 11	30617 00	3069B 00	3069B 29	30850 00	30795 00	30795 00	30893 00	3079F 22	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 93 pt
30534 13	32934 13	32934 13	30697 77	30697 77	30697 11 30697 78	30861 00	30797 41	30797 41			
30534 15	32934 15	32934 15	3069C 12	35558 72	35557 72	30862 10	30797 51	30797 42			
30534 17	32934 17	32934 17	3069C 30	35558 76	35557 76	30862 20	30797 53		30894 01	30798 01	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30535 11	32935 11	32935 11	3069D 20	3069D 20	3069D 17 3069D 19	30864 10	30797 71	30797 45			
30535 13	32935 13	32935 13	3069D 42	3069D 42	3069D 55 3069D 58	30864 20	30797 73				
30535 15	32935 15	32935 15	3069E 20	30310 00	30310 00	30864 30	30797 75		30894 02	30798 02	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30535 17	32935 17	32935 17	3069F 20	30792 11	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30864 90	30797 79				
30535 19	32935 19	32935 19	30865 10	30797 81	30797 46	30865 20	30797 83				
30535 21	32935 21	32935 21	30865 30	30797 85		30865 40	30797 86		30894 03	30798 03	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30535 23	32935 23	32935 23	30865 50	30797 88		30865 90	30797 89				
30535 25	32935 25	32935 25	30866 10	30797 43	30797 43	30866 20	30797 91				
30536 21	32936 21	32936 21	30866 30	30797 47	30797 47	30866 40	30797 92		30894 04	30798 04	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30536 22	32936 22	32936 22	30866 50	30797 47		30866 60	30797 93				
30536 25	32936 25	32936 25	30866 70	30797 47		30867 10	30791 01	3079K 99			
30536 26	32936 26	32936 26	30867 12	30792 12	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 20	30791 02	3079K 99	30894 05	30798 05	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30536 30	32936 30	32936 30	30867 30	30792 13	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 40	30791 03	3079K 99			
30536 35	32936 35	32936 35	30867 40	30792 14	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 50	30791 04	3079K 99			
30537 29	32937 29	32937 29	30867 50	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 60	30791 05	3079K 99	30894 06	30798 06	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30537 39	32937 39	32937 39	30867 60	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 70	30791 06	3079K 99			
30537 41	32937 41	32937 41	30867 70	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 80	30791 07	3079K 99			
30537 43	32937 43	32937 43	30867 80	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 90	30791 08	3079K 99	30894 07	30798 07	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30537 49	32937 49	32937 49	30867 90	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 100	30791 09	3079K 99			
30538 10	32938 10	32938 10	30867 100	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 110	30791 10	3079K 99			
30538 13	32938 13	32938 13	30867 110	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 120	30791 11	3079K 99	30894 09	30798 09	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30538 15	32938 15	32938 15	30867 120	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 130	30791 12	3079K 99			
30538 17	32938 17	32938 17	30867 130	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 140	30791 13	3079K 99			
30538 19	32938 19	32938 19	30867 140	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 150	30791 14	3079K 99	30895 01	30799 01	3079J 61 pt
30539 70	32939 70	32939 70	30867 150	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 160	30791 15	3079K 99			
30539 73	32939 73	32939 73	30867 160	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 170	30791 16	3079K 99			
30539 75	32939 75	32939 75	30867 170	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt	30867 180	30791 17	3079K 99	30895 01	30799 01	3079J 61 pt

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1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published
30895 01— Con.	30799 01— Con.	3079J 61 pt —Con. 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt	30896 22— Con.	3079A 21— Con.	3079J 61 pt —Con. 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 05— Con.	3079B 25— Con.	3079J 61 pt —Con. 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt	32927 15	32927 15	32929 11 32929 21
30895 02	30799 02	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt	30896 23	3079A 23	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 06	3079B 26	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt	32927 34	32927 34	32929 34
30895 03	30799 03	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt	30896 24	3079A 25	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 07	3079B 27	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt	32927 78	32927 78	32929 51 32929 73 32929 75
30896 11	3079A 11	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30896 25	3079A 27	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 08	3079B 28	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3179K 99	32961 11	32961 11	32963 11 32965 11
30896 12	3079A 12	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30896 26	3079A 28	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 09	3079B 29	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt	32961 38	32961 38	32963 38 32965 38
30896 13	3079A 13	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30896 27	2499A 94 3079A 29	2499A 94 3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30899 00	3079F 31	3079K 88	32961 51	32961 51	32963 51 32965 51
30896 14	3079A 14	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30897 01	3079F 25	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 95 pt	3089A 11	3079F 41	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt	32961 61	32961 61	32963 61 32965 61
30896 15	3079A 15	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30897 09	3079F 27	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 95 pt	3089A 12	3079F 43	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt	32962 34	32962 34	32964 34 32966 34
30896 16	3079A 16	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 01	3079B 21	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 95 pt	3089A 14	3079F 47	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt	32962 36	32962 36	32964 36 32966 36
30896 17	3079A 17	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 02	3079B 22	3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	3089A 18	3079F 49	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt	32962 45	32962 45	32964 45 32966 45
30896 18	3079A 18	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 03	3079B 23	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	32962 51	32962 51	32964 51 32966 51			
30896 19	3079A 19	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 04	3079B 24	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	32962 61	32962 61	32964 61 32966 61			
30896 21	3079A 20	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	30898 05	3079B 25	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	32962 83	32962 83	32964 83 32966 83			
30896 22	3079A 21	3079J 61 pt 3079J 62 pt	30898 06	3079B 26	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt	32962 98	32962 98	32964 98 32966 98			
						33121 98	33121 98	33121 79 33121 85 33121 98			
						3312A 11	3312A 11	3312A 00			
						3312A 23	3312A 23	3312A 23			
						3312A 25	3312A 25	3312A 25			
						3312A 27	3312A 27	3312A 27			
						3312B 61	3312B 61	3312B 00			
						3312B 63	3312B 63	3312B 63			
						3312B 65	3312B 65	3312B 65			
						3312B 67	3312B 67	3312B 67			
						33151 22	33151 22	33151 21			
						33151 23	33151 23	33151 23			
						33152 01	33152 01	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt			
						33152 11	33152 11	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt			
						33152 14	33152 14	33152 14 pt 33152 16 pt 33152 20 pt			
						33152 15	33152 15	33152 15 pt 33152 17 pt 33152 19 pt			
						33152 16	33152 16	33152 16 pt 33152 18 pt 33152 22 pt			
						33152 17	33152 17	33152 17 pt 33152 19 pt			
						33152 18	33152 18	33152 18 pt 33152 20 pt			
						33152 19	33152 19	33152 19 pt 33152 21 pt			
						33152 20	33152 20	33152 20 pt 33152 22 pt			
						33152 21	33152 21	33152 21 pt 33152 23 pt			
						33152 22	33152 22	33152 22 pt 33152 24 pt			
						33152 23	33152 23	33152 23 pt 33152 25 pt			
						33152 24	33152 24	33152 24 pt 33152 26 pt			
						33152 25	33152 25	33152 25 pt 33152 27 pt			
						33152 26	33152 26	33152 26 pt 33152 28 pt			
						33152 27	33152 27	33152 27 pt 33152 29 pt			
						33152 28	33152 28	33152 28 pt 33152 30 pt			
						33152 29	33152 29	33152 29 pt 33152 31 pt			
						33152 30	33152 30	33152 30 pt 33152 32 pt			
						33152 31	33152 31	33152 31 pt 33152 33 pt			
						33152 32	33152 32	33152 32 pt 33152 34 pt			
						33152 33	33152 33	33152 33 pt 33152 35 pt			
						33152 34	33152 34	33152 34 pt 33152 36 pt			
						33152 35	33152 35	33152 35 pt 33152 37 pt			
						33152 36	33152 36	33152 36 pt 33152 38 pt			
						33152 37	33152 37	33152 37 pt 33152 39 pt			
						33152 38	33152 38	33152 38 pt 33152 40 pt			
						33152 39	33152 39	33152 39 pt 33152 41 pt			
						33152 40	33152 40	33152 40 pt 33152 42 pt			
						33152 41	33152 41	33152 41 pt 33152 43 pt			
						33152 42	33152 42	33152 42 pt 33152 44 pt			
						33152 43	33152 43	33152 43 pt 33152 45 pt			
						33152 44	33152 44	33152 44 pt 33152 46 pt			
						33152 45	33152 45	33152 45 pt 33152 47 pt			
						33152 46	33152 46	33152 46 pt 33152 48 pt			
						33152 47	33152 47	33152 47 pt 33152 49 pt			
						33152 48	33152 48	33152 48 pt 33152 50 pt			
						33152 49	33152 49	33152 49 pt 33152 51 pt			
						33152 50	33152 50	33152 50 pt 33152 52 pt			
						33152 51	33152 51	33152 51 pt 33152 53 pt			
						33152 52	33152 52	33152 52 pt 33152 54 pt			
						33152 53	33152 53	33152 53 pt 33152 55 pt			
						33152 54	33152 54	33152 54 pt 33152 56 pt			
						33152 55	33152 55	33152 55 pt 33152 57 pt			
						33152 56	33152 56	33152 56 pt 33152 58 pt			
						33152 57	33152 57	33152 57 pt 33152 59 pt			
						33152 58	33152 58	33152 58 pt 33152 60 pt			
						33152 59	33152 59	33152 59 pt 33152 61 pt			
						33152 60	33152 60	33152 60 pt 33152 62 pt			
						33152 61	33152 61	33152 61 pt 33152 63 pt			
						33152 62	33152 62	33152 62 pt 33152 64 pt			
						33152 63	33152 63	33152 63 pt 33152 65 pt			
						33152 64	33152 64	33152 64 pt 33152 66 pt			
						33152 65	33152 65	33152 65 pt 33152 67 pt			
						33152 66	33152 66	33152 66 pt 33152 68 pt			
						33152 67	33152 67	33152 67 pt 33152 69 pt			
						33152 68	33152 68	33152 68 pt 33152 70 pt			
						33152 69	33152 69	33152 69 pt 33152 71 pt			
						33152 70	33152 70	33152 70 pt 33152 72 pt			
						33152 71	33152 71	33152 71 pt 33152 73 pt			
						33152 72	33152 72	33152 72 pt 33152 74 pt			
						33152 73	33152 73	33152 73 pt 33152 75 pt			
						33152 74	33152 74	33152 74 pt 33152 76 pt			
						33152 75	33152 75	33152 75 pt 33152 77 pt			
						33152 76	33152 76	33152 76 pt 33152 78 pt			
						33152 77	33152 77	33152 77 pt 33152 79 pt			
						33152 78	33152 78	33152 78 pt 33152 80 pt			
						33152 79	33152 79	33152 79 pt 33152 81 pt			
						33152 80	33152 80	33152 80 pt 33152 82 pt			
						33152 81	33152 81	33152 81 pt 33152 83 pt			
						33152 82	33152 82	33152 82 pt 33152 84 pt			
						33152 83	33152 83	33152 8			

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1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published
33152 03—Con.	33152 03—Con.	33152 11 pt 33152 Con. 34967 19 pt	33157 42—Con.	33157 42—Con.	33157 31 pt 33157 71 pt	33561 66—Con. 33562 78 33563 91 33569 91	33561 66—Con. 33562 78 33563 91 33569 91	33569 92—Con.	34236 21	34236 21	34233 21
33152 05	33152 05	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 13 pt 34967 17 pt 34967 19 pt	33157 43	33157 43	33157 31 pt 33157 61 pt 33157 71 pt	33630 00	33611 00	33611 00	34236 41	34236 41	34233 41
33152 07	33152 07	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt	33159 44	33159 44	33159 49	33640 11	33620 42	33620 42	34236 81	34236 81	34238 81
33152 09	33152 09	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt	33211 21	33211 21	33211 22 pt 33211 24 pt 33211 27 pt 33211 30 pt	33640 41	33693 71	33693 71	34236 99	34236 99	34233 99
33152 10	33152 10	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt	33211 23	33211 23	33211 22 pt 33211 24 pt 33211 27 pt 33211 30 pt	33640 51	33693 91	33693 91	34292 12	34292 12	34298 98
33152 12	33152 12	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt	33211 25	33211 25	33211 33 pt 33211 36 pt 33211 39 pt 33211 42 pt	33650 11	33612 11	33612 11	34236 05	34320 05	34320 06
33152 14	33152 14	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt	33211 26	33211 26	33211 33 pt 33211 36 pt 33211 39 pt 33211 42 pt	33650 31	33612 31	33612 31	34320 09	34320 09	34320 08
33152 16	33152 16	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt	33217 31	33217 31	33217 32 pt 33217 34 pt 33217 37 pt 33217 40 pt	33650 51	33612 51	33612 51	34320 14	34320 14	34320 98
33152 22	33152 22	33152 33 pt 34967 23 pt	33217 33	33217 33	33217 32 pt 33217 34 pt 33217 37 pt 33217 40 pt	33650 61	33612 61	33612 61	34320 25	34320 25	34320 35
33152 23	33152 23	33152 23 34967 19 pt	33217 35	33217 35	33217 32 pt 33217 34 pt 33217 37 pt 33217 40 pt	33650 73	33612 73	33612 73	34320 47	34320 47	34320 79
33152 25	33152 25	33152 25 34967 21	33217 36	33217 36	33217 33 pt 33217 36 pt 33217 39 pt 33217 52 pt	33660 20	33620 20	33620 20	34320 67	34320 67	34320 65
33152 30	33152 30	33152 33 pt 34967 23 pt	33217 39	33217 39	33217 38 pt	33660 21	33620 21	33620 21	34320 69	34320 69	
33156 15	33156 15	33156 13 33156 17	33217 41	33217 41	33217 39 pt	33660 22	33620 22	33620 22	34320 71	34320 71	34320 98
33156 17	33156 17		33217 43	33217 43	33217 43 pt 33217 46 pt 33217 49 pt 33217 52 pt	33660 23	33620 23	33620 23	34320 74	34320 74	34320 75
33156 22	33156 22	33156 21 33156 24	33217 49	33217 49	33217 48 pt	33660 24	33620 24	33620 24	34320 76	34320 76	34320 77
33157 21	33157 21	33157 31 pt 33157 61 pt 33157 71 pt	33252 11	33252 11	33252 12 33252 13	33660 25	33620 25	33620 25	34320 80	34320 80	34320 55
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33157 31	33157 31		33252 11	33252 11	33252 12 33252 13	33660 35	33620 35	33620 35	34320 97	34320 97	
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33157 35	33157 35		33252 11	33252 11	33252 12 33252 13	33660 39	33620 39	33620 39	34432 46	34432 46	34432 47
33157 36	33157 36		33252 11	33252 11	33252 12 33252 13	33660 40	33620 40	33620 40	34432 48	34432 48	
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33157 39	33157 39		33252 11	33252 11	33252 12 33252 13	33660 43	33620 43	33620 43	34432 51	34432 51	
33157 40	33157 40		33252 11	33252 11	33252 12 33252 13	33660 44	33620 44	33620 44	34432 52	34432 52	34432 99
33157 41	33157 41		33252 11	33252 11	33252 12 33252 13	33660 45	33620 45	33620 45	34432 53	34432 53	
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33157 46	33157 46		33252 11	33252 11	33252 12 33252 13	33660 50	33620 50	33620 50	34432 58	34432 58	
33157 47	33157 47		33252 11	33252 11	33252 12 33252 13	33660 51	33620 51	33620 51	34432 59	34432 59	
33157 48	33157 48		33252 11	33252 11	33252 12 33252 13	33660 52	33620 52	33620 52	34432 60	34432 60	
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33157 51	33157 51		33252 11	33252 11	33252 12 33252 13	33660 55	33620 55	33620 55	34432 63	34432 63	
33157 52	33157 52		33252 11	33252 11	33252 12 33252 13	33660 56	33620 56	33620 56	34432 64	34432 64	
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33157 55	33157 55		33252 11	33252 11	33252 12 33252 13	33660 59	33620 59	33620 59	34432 67	34432 67	
33157 56	33157 56		33252 11	33252 11	33252 12 33252 13	33660 60	33620 60	33620 60	34432 68	34432 68	
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33157 58	33157 58		33252 11	33252 11	33252 12 33252 13	33660 62	33620 62	33620 62	34432 70	34432 70	
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33157 61	33157 61		33252 11	33252 11	33252 12 33252 13	33660 65	33620 65	33620 65	34432 73	34432 73	
33157 62	33157 62		33252 11	33252 11	33252 12 33252 13	33660 66	33620 66	33620 66	34432 74	34432 74	
33157 63	33157 63		33252 11	33252 11	33252 12 33252 13	33660 67	33620 67	33620 67	34432 75	34432 75	
33157 64	33157 64		33252 11	33252 11	33252 12 33252 13	33660 68	33620 68	33620 68	34432 76	34432 76	
33157 65	33157 65		33252 11	33252 11	33252 12 33252 13	33660 69	33620 69	33620 69	34432 77	34432 77	
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33157 67	33157 67		33252 11	33252 11	33252 12 33252 13	33660 71	33620 71	33620 71	34432 79	34432 79	
33157 68	33157 68		33252 11	33252 11	33252 12 33252 13	33660 72	33620 72	33620 72	34432 80	34432 80	
33157 69	33157 69		33252 11	33252 11	33252 12 33252 13	33660 73	33620 73	33620 73	34432 81	34432 81	
33157 70	33157 70		33252 11	33252 11	33252 12 33252 13	33660 74	33620 74	33620 74	34432 82	34432 82	
33157 71	33157 71		33252 11	33252 11	33252 12 33252 13	33660 75	33620 75	33620 75	34432 83	34432 83	
33157 72	33157 72		33252 11	33252 11	33252 12 33252 13	33660 76	33620 76	33620 76	34432 84	34432 84	
33157 73	33157 73		33252 11	33252 11	33252 12 33252 13	33660 77	33620 77	33620 77	34432 85	34432 85	
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33157 75	33157 75		33252 11	33252 11							

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34434 17	34434 17	34434 12 pt	34463 12	34463 12	34460 46	34913 35	3494A 45	3494A 45	34931 57	34931 57	34931 56 34931 58
34434 19	34434 19	34434 18 pt	34463 20	34463 20	34460 49	34913 47	3494A 46	3494A 46	34931 99	34931 99	34931 63 34931 98
34435 21	34435 21	34435 20	34463 22	34463 22		34913 59	3494A 47	3494A 47			34932 10 34932 20
34435 23	34435 23		34464 10	34464 10	34460 54 pt 34460 56 pt	34913 61	3494A 49	3494A 49	34944 21	34944 21	34944 11
34435 31	34435 31	34435 35	34464 13	34464 13	34460 54 pt 34460 56 pt	34914 11	3494A 51	3494A 51	34944 31 34944 41 34944 51 34944 99	34944 31 34944 41 34944 51 34944 99	34944 19
34435 33	34435 33		34464 16	34464 16	34460 54 pt 34460 56 pt	34914 13	3494A 52	3494A 52			
34435 37	34435 37	34435 38	34464 18	34464 18	34460 54 pt 34460 56 pt	34914 15	3494A 53	3494A 53			
34438 03	34438 03	34438 04	34464 18	34464 18	34460 54 pt 34460 56 pt	34914 17	3494A 54	3494A 54	34945 12 34945 14 34945 16 34945 17 34945 99	34945 12 34945 14 34945 16 34945 17 34945 99	34945 98
34438 05	34438 05		34465 10	34465 10	34460 54 pt	34914 21	3494A 55	3494A 55			
34438 14	34438 14	34438 15	34465 12	34465 12	34460 56 pt	34914 23	3494A 56	3494A 56	34961 22 34961 31	34961 22 34961 31	34961 21
34438 16	34438 16		34465 12	34465 12	34460 56 pt	34914 25	3494A 57	3494A 57			
34438 17	34438 17	34438 18	34482 11	34482 11	34482 17 34482 27	34914 31	3494A 58	3494A 58	34964 41	34964 41	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34438 19	34438 19		34482 11	34482 11	34482 17 34482 27	34914 31	3494A 58	3494A 58			
34439 15	34439 15	34439 21	34465 30	34465 30	34460 62	34914 61	3494A 59	3494A 59	34964 43	34964 43	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34439 17	34439 17		34465 30	34465 30	34460 62	34914 61	3494A 59	3494A 59			
34439 19	34439 19		34482 11	34482 11	34482 17 34482 27	34914 61	3494A 59	3494A 59			
34439 31	34439 31	34439 30	34625 11	34625 11	34625 00	34915 11	3494A 61	3494A 61	34964 43	34964 43	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34439 32	34439 32		34625 13	34625 13	34625 00	34915 11	3494A 61	3494A 61			
34439 33	34439 33		34625 15	34625 15	34625 00	34915 23	3494A 63	3494A 63			
34439 34	34439 34		34625 17	34625 17	34625 00	34915 23	3494A 63	3494A 63			
34439 51	34439 51	34439 56	34626 11	34626 11	34626 00	34915 35	3494A 65	3494A 65	34964 45	34964 45	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34439 53	34439 53		34626 13	34626 13	34626 00	34915 35	3494A 65	3494A 65			
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34441 23	34441 23	34446 36	34626 17	34626 17	34626 00	34915 47	3494A 67	3494A 67			
34441 27	34441 27	34446 34	34627 11	34627 11	34627 00	34915 61	3494A 69	3494A 69	34964 51	34964 51	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34441 29	34441 29	34446 32	34627 13	34627 13	34627 00	34916 11	3494A 31	3494A 31			
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34443 13	34443 13		34628 13	34628 13	34628 00	34916 31	3494A 33	3494A 33			
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34443 23	34443 23		34628 17	34628 17	34628 00	34916 41	3494A 35	3494A 35			
34447 21	34447 21	34446 47	34692 20	34692 20	34692 99	34916 53	3494A 36	3494A 36	34964 55	34964 55	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34447 25	34447 25	34446 46	34696 00	34696 00	34699 99	34916 65	3494A 38	3494A 38	34966 23	34966 23	34966 13
34447 31	34447 31	34446 11	34699 98	34699 98	34699 99	34916 77	3494A 71	3494A 71	34966 25	34966 25	34966 25
34447 41	34447 41	34446 51	34790 10	34790 10	34790 19	34916 77	3494A 71	3494A 71	34966 25	34966 25	34966 13
34448 11	34448 11	34446 62 pt	34790 11	34790 11	34790 21	34916 79	3494A 75	3494A 75	34966 27	34966 27	34966 21
34448 13	34448 13	34446 64 pt	34790 73	34790 73	34790 71	34916 98	3494A 98	3494A 98	34968 45	34968 45	34968 49
34448 19	34448 19		34790 75	34790 75	34790 71	34917 11	34949 11	34949 11	34968 46	34968 46	
34449 31	34449 31	34446 15	34911 11	3494A 11	3494A 11	34917 11	34949 11	34949 11	34968 47	34968 47	
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34449 53	34449 53	34446 44	34911 23	3494A 14	3494A 14	34917 15	34949 15	34949 15	34968 83	34968 83	
34449 55	34449 55	34446 42	34911 38	3494A 15	3494A 15	34917 27	34949 27	34949 27	34968 85	34968 85	
34449 62	34449 62	34446 62 pt	34911 43	3494A 17	3494A 17	34917 31	34949 31	34949 31	34995 21	34995 21	34995 13 34995 15
34449 65	34449 65	34446 64 pt	34911 52	3494A 19	3494A 19	34917 39	34949 39	34949 39	34995 31	34995 31	34995 19
34449 98	34449 98	34446 98	34912 01	3494A 21	3494A 21	34917 98	34949 98	34949 98	34998 25	34998 25	34998 98
34461 10	34461 10	34460 07	34912 11	3494A 22	3494A 22	34918 00	34947 00	34947 00	34998 99	34998 99	
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34461 15	34461 15	34460 12	34912 23	3494A 24	3494A 24	34921 00	3494B 00	3494B 00	35111 02	35111 02	
34461 17	34461 17	34460 17	34912 31	3494A 25	3494A 25	34922 00	3494C 00	3494C 00	35112 00	35112 00	35112 00 pt
34462 10	34462 10	34460 31	34912 35	3494A 26	3494A 26	34923 00	3494D 00	3494D 00	35112 21	35112 21	35112 01 pt 35112 15 35112 16
34462 12	34462 12	34460 36	34912 41	3494A 27	3494A 27	34924 00	3494E 00	3494E 00	35112 22	35112 22	35112 01 pt 35112 17
34462 22	34462 22	34460 22	34912 43	3494A 29	3494A 29	34925 00	3494F 00	3494F 00	35112 23	35112 23	35112 08 35112 18
34462 26	34462 26	34460 51	34913 11	3494A 39	3494A 39	34926 00	3494G 00	3494G 00	35112 24	35112 24	35112 09 35112 19
34463 10	34463 10	34460 41	34913 23	3494A 43	3494A 43	34927 00	3494H 00	3494H 00	35112 24	35112 24	

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35112 74	35112 74	35112 75 pt	3531E 00	3531E 00	35314 00 pt	35337 22	35337 22	35331 41	35364 03	35364 03	35362 09
						35337 23	35337 23				35362 15 pt
35112 76	35112 76	35112 75 pt 35112 77	3531F 00	3531F 00	35316 00	35337 24	35337 24	35331 46	35364 04	35364 04	35362 11
						35337 25	35337 25				35362 15 pt
35112 79	35112 79	35112 00 pt	3531G 00	3531G 00	35318 00 pt	35337 26	35337 26	35331 43	35364 05	35364 05	35362 13
35112 83	35112 83		3531H 00	3531H 00	35313 00 pt 35318 00 pt 35319 85	35337 27	35337 27	35331 47	35364 06	35364 06	35362 14
35199 01	35199 01	35199 98 pt				35337 44	35337 44	35331 44	35364 06	35364 06	35362 15 pt
35199 33	35199 26	35199 26	3531K 06	3531K 06	35319 06	35337 45	35337 45	35331 45	35364 17	35364 17	35362 55 pt
35199 41	35199 41	35199 03	3531K 07	3531K 07	35319 07	35337 47	35337 47	35331 47	35364 52	35364 52	35362 52
35199 42	35199 42					35337 48	35337 48	35331 48	35364 54	35364 54	35362 55 pt
35199 43	35199 43	35199 04	3531K 11	3531K 11	35319 11	35337 59	35337 59	35331 59	35373 01	35373 01	35371 23 pt
35199 44	35199 44		3531K 20	3531K 20	35319 20	35337 61	35337 61	35332 61 pt	35373 02	35373 02	35371 23 pt
35199 45	35199 45	35199 05	3531K 21	3531K 21	35319 21	35338 31	35338 31	35332 31	35373 03	35373 03	35371 11 pt
35199 46	35199 46		3531K 22	3531K 22	35319 23	35338 51	35338 51	35332 51	35373 05	35373 05	35371 36 pt
35199 47	35199 47	35199 06 pt 35199 07 pt	3531K 24	3531K 24		35338 55	35338 55	35332 55			35371 37 pt
35199 48	35199 48	35199 06 pt 35199 07 pt	3531K 25	3531K 25	35319 25	35338 98	35338 98	35332 98	35373 06	35373 06	35371 38 pt
35199 51	35199 51	35199 14	3531K 27	3531K 27	35319 27	35338 99	35338 99	35332 61 pt	35373 08	35373 08	35371 11 pt
35199 52	35199 52		3531K 53	3531K 53	35319 52	35339 12	35339 12	35333 12	35373 12	35373 12	35371 61
35199 53	35199 53	35199 15	3531K 55	3531K 55		35339 13	35339 13	35333 13	35373 15	35373 15	35371 23 pt
35199 54	35199 54		3531K 61	35363 36	35361 36	35339 14	35339 14	35333 14	35373 16	35373 16	35371 41 pt
35199 55	35199 55	35199 16	3531K 70	3531K 70	35319 70	35339 19	35339 19	35333 19	35373 17	35373 17	35371 36 pt
35199 56	35199 56		3531K 74	3531K 74	35319 72 35319 73	35339 21	35339 21	35333 21			35371 37 pt
35199 57	35199 57	35199 17	3531K 77	3531K 77	35319 75 35319 76	35339 53	35339 53	35333 53	35373 18	35373 18	35371 38 pt
35199 58	35199 58		3531K 82	3531K 82	35319 82	35339 55	35339 55	35333 55			35371 41 pt
35199 59	35199 59	35199 18	3531K 90	3531K 40	35319 41	35339 57	35339 57	35333 57	35373 19	35373 19	35371 65
35199 60	35199 60		3531K 97	3531K 97	35319 97	35339 61	35339 61	35333 61	35373 21	35373 21	35371 55
35199 61	35199 61	35199 19	3531M 01	3531M 01	35313 00 pt	35339 65	35339 65	35333 65	35373 25	35373 25	35371 99 pt
35199 62	35199 62		3531M 03	3531M 03	35314 00 pt	35339 71	35339 71	35333 71	35373 26	35373 26	35371 75
35199 91	35199 91	35199 22 pt 35199 23 pt 35199 28 pt 35199 29 pt 35199 98 pt	3531M 05	3531M 05	35319 84 pt 35319 86 pt	35339 82	35339 82	35333 82	35373 28	35373 28	35371 81
35199 92	35199 92	35199 22 pt 35199 23 pt 35199 28 pt 35199 29 pt 35199 98 pt	3531M 07	3531M 07	35319 84 pt 35319 86 pt	35339 98	35339 98	35333 98	35373 29	35373 29	35371 83
35239 26	35239 26	35239 21 35239 25	3531M 09	3531M 09	35319 84 pt 35319 86 pt	3533A 10	3533A 10	35335 10	35373 31	35373 31	35371 71
35239 31	35239 31	35239 01 35239 02 35239 03 35239 04 35239 05 35239 06 35239 07 35239 08 35239 09 35239 11 35239 12 35239 19 35239 30	3531M 15	3531M 19	35319 84 pt 35319 86 pt	3533B 21	3533B 21	35336 21	35373 32	35373 32	35371 85
			35374 15	35374 15	35372 85 pt	3533B 32	3533B 32	35336 31	35373 35	35373 35	35364 41
			35329 33	35329 33	35329 31 pt 35329 35 pt	35363 01	35363 01	35361 11	35373 39	35373 39	35371 48 35371 99 pt
			35329 34	35329 34	35329 31 pt 35329 35 pt	35363 02	35363 02	35361 11	35374 11	35374 11	35372 11
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3523C 00	3523C 00	35234 00 pt 35237 00 35238 00 pt	35329 41	35329 41		35363 16	35363 16	35361 16	35419 21	35419 21	35419 41
			35329 43	35329 43		35363 32	35363 32	35361 33 35361 39 pt	35419 22	35419 22	35419 22
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									35419 26	35419 26	35419 26
3523E 00	3523E 00	35234 00 pt 35238 00 pt	35329 71	35329 71	35329 79	35363 34	35363 34	35361 35 35361 39 pt	3541D 00	3541D 00	35411 00 35412 00
3523F 00	3523F 00	3523A 00 3523B 00	35329 73	35329 73							
			35329 75	35329 75							
35246 00	35246 00	35243 00 35245 00	35337 11	35337 11	35331 11	35363 37	35363 37	35361 39 pt	35421 00	35421 00	35421 10 35421 20
			35337 14	35337 14	35331 14	35363 38	35363 38				
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3531B 00	3531B 00	35312 00	35337 16	35337 16	35331 16	35364 01	35364 01	35362 07 35362 15 pt	35424 02	35424 02	35424 02
3531C 00	3531C 00	35317 10 35317 20 35317 30	35337 17	35337 17	35331 17	35364 02	35364 02	35362 08 35362 15 pt	35424 03	35424 03	35424 75
			35337 21	35337 21	35331 21				35424 04	35424 04	
									35424 05	35424 05	
									35430 11	35650 11	35650 11

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35441 25	35441 25				35462 75						
35441 42	35441 42	35441 91			35462 76						
35441 44	35441 44				35462 77						
35441 83	35441 83				35462 78						
35441 89	35441 89										
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35442 16	35442 16	35442 25 pt	35473 51	35473 51		35485 04	35497 73	35497 73	35543 11	35543 11	35541 49 pt 35542 73 pt
35442 17	35442 17	35442 62 pt	35473 52	35473 52		35485 05	35497 74	35497 63 35497 75	35543 12	35543 12	35541 49 pt 35542 73 pt
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35442 23	35442 23					35492 13	35492 13	35492 19	35543 15	35543 15	35541 41 35541 43 35541 49 pt 35542 73 pt
35442 41	35442 41	35442 33				35492 18	35492 18		35543 21	35543 21	35541 59 pt 35542 73 pt
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35442 45	35442 45	35442 62 pt	35481 04	36231 32	36231 32	35495 02	35495 02		35543 23	35543 23	35541 53 35542 73 pt
35442 47	35442 47					35495 03	35495 03		35543 24	35543 24	35541 54 pt 35541 59 pt 35542 73 pt
35442 67	35442 67					35495 92	35495 92	35495 98	35543 25	35543 25	35541 54 pt 35541 59 pt 35542 73 pt
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35451 54	35451 54					35533 15	35533 15	35531 15	35544 01	35544 01	35542 89
35451 51	35451 51	35453 51	35482 07	36232 43	36232 59 pt 36232 64 pt	35533 19	35533 19	35531 62	35544 02	35544 02	35542 83
35451 59	35451 59	35453 59	35482 08	36232 45	36232 59 pt 36232 64 pt 36232 68 pt	35533 21	35533 21	35531 73 pt	35544 03	35544 03	35542 85
35451 98	35451 98	35453 98				35533 23	35533 23		35544 04	35544 04	
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35455 13	35455 13	35452 13	35482 12	36232 54	36232 54	35533 29	35533 29	35531 98 pt	35551 02	35551 02	35551 01 35551 03 35551 05 35551 08
35455 15	35455 15	35452 15	35482 13	36232 55	36232 55	35533 31	35533 31	35531 73 pt	35553 08	35553 08	35553 11 35553 12
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35455 21	35455 21	35452 21	35482 15	36232 62	36232 61 36232 65	35533 35	35533 35	35531 98 pt	35553 08	35553 08	35553 11 35553 12
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35455 65	35455 65	35452 65				35533 39	35533 39	35531 17 35531 73 pt 35531 75 pt 35531 98 pt	35554 05	35554 05	35554 05
35455 71	35455 71	35452 71	35483 05	36233 13	36233 13				35555 02	35555 02	35555 01
35455 81	35455 81	35452 99 pt	35483 06	36233 23	36233 23	35533 87	35533 87	35531 87	35555 02	35555 02	35555 01
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35455 93	35455 93	35452 99 pt	35483 09	36233 61	36233 61	35534 04	35534 04	35532 98	35555 85	35555 85	35555 85
35455 94	35455 94	35452 94	35483 11	36233 71	36233 71	35534 05	35534 05		35555 87	35555 87	35555 87
35455 95	35455 95	35452 95	35483 19	36233 81	36233 81	35534 06	35534 06		35555 89	35555 89	35555 89
35455 96	35455 96	35452 99 pt	35484 01	35496 01	35496 01	35534 07	35534 07		35555 99	35555 99	35555 99
35455 97	35455 97					35534 08	35534 08				
35455 98	35455 98					35534 09	35534 09				
35456 42	35462 42	35462 43	35484 02	35496 05	35496 05	35534 11	35534 11	35532 81 pt			
35456 44	35462 44					35534 01	35534 01	35531 11 35532 73 pt			
35456 47	35462 47	35462 45 35462 49	35484 04	35496 15	35496 15	35534 02	35534 02	35531 21 35531 27 35532 73 pt			
			35484 05	35496 17	35496 17				35561 05	35561 05	35561 05
									35561 06	35561 06	35561 06

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1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published
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35561 08	35511 08	35511 99 pt	35593 03	35593 31	35593 31	35599 15	35599 15	35595 41 pt 35595 98 pt	35645 46 35645 47	35645 46 35645 47	35645 49
35561 09	35511 09	35511 41 pt	35593 05	35593 32	35593 32	35599 17	35599 17	35595 41 pt 35595 98 pt	35646 10 35646 20	35646 10 35646 20	35646 00
35561 11	35511 11	35511 99 pt	35593 07	35593 34	35593 34	35599 19	35599 19	35595 41 pt 35595 98 pt	35651 01	35514 15 35691 15	35514 15 35691 15
35561 19	35511 19		35593 09	35593 35	35593 35	35599 22	35599 22	35595 41 pt 35595 98 pt	35651 02	35514 22 35691 22	35514 22 35691 22
35561 21	35511 21		35593 11	35593 52	35593 52	35599 25	35599 25	35595 41 pt 35595 98 pt	35651 03	35514 26 35691 26	35514 26 35691 26
35562 11	35512 11	35512 11	35593 13	35593 13	35593 53 35593 54	35599 27	35599 27	35595 41 pt	35651 04	35514 29 35691 29	35514 29 35691 29
35562 21	35512 21	35512 21	35593 15	35593 61	35593 61	35599 29	35599 29	35595 41 pt	35651 05	35514 30 35691 30	35514 30 35691 30
35562 31	35512 31	35512 31	35593 17	35593 71	35593 71	35599 31	35599 31	35595 45	35651 06	35514 32 35691 32	35514 32 35691 32
35562 41	35512 41	35512 41	35593 19	35593 72	35593 72	35599 33	35599 33	35595 49	35651 07	35514 33 35691 33	35514 33 35691 33
35562 51	35512 51	35512 51	35593 21	35593 21	35593 79	35599 39	35599 39	35595 43	35651 08	35514 35 35691 35	35514 35 35691 35
35562 65	35512 65	35512 61 35512 92 pt	35593 23	35593 23	35593 79	35599 43	35599 43	35595 52	35651 09	35514 41 35691 41	35514 41 35691 41
35562 71	35512 71	35512 71	35593 25	35593 25		35599 47	35599 47	35595 85 pt	35651 11	35514 52 35691 52	35514 52 35691 52
35562 75	35512 75	35512 75	35593 27	35593 27	35593 81	35599 49	35599 49	35595 98 pt	35651 12	35514 53 35691 53	35514 53 35691 53
35562 85	35512 85	35512 92 pt	35593 28	35593 28	35593 29	35599 53	35599 53	35595 73	35651 13	35514 54 35691 54	35514 54 35691 54
35562 91	35512 91	35512 87 35512 92 pt	35594 01	35594 11	35594 11	35599 57	35599 57	35595 92	35651 14	35514 55 35691 55	35514 55 35691 55
35563 01	35513 01	35513 59 pt	35594 03	35594 31	35594 31	35599 61	35599 61	35595 96	35651 15	35514 63 35691 63	35514 63 35691 63
35563 02	35513 02	35513 39	35594 05	35594 51	35594 51	35599 65	35599 65	35595 82 pt	35651 16	35514 71 35691 71	35514 71 35691 71
35563 03	35513 03	35513 59 pt	35594 09	35594 09	35594 79	35599 67	35599 67	35595 86 pt	35651 17	35514 81 35691 81	35514 81 35691 81
35563 04	35513 04		35594 13	35594 13	35594 15	35599 69	35599 69	35595 83 pt 35595 84 pt	35651 18	35514 82 35691 82	35514 82 35691 82
35563 05	35513 05	35513 23 pt 35513 59 pt	35594 17	35594 17	35594 81	35599 71	35599 71	35595 82 pt 35595 83 pt 35595 84 pt 35595 85 pt 35595 86 pt	35651 19	35514 83 35691 83	35514 83 35691 83
35563 06	35513 06	35513 52 35513 59 pt	35594 19	35594 19	35594 21	35599 73	35599 73	35595 87	35651 21	35514 84 35691 84	35514 84 35691 84 pt
35563 07	35513 07	35513 59 pt	35596 01	35596 01	35595 95	35599 77	35599 77	35595 94	35651 22	35514 11 35691 85	35513 67 35691 84 pt
35563 08	35513 08	35513 49	35596 03	35596 03		35599 80	35599 80	35595 98 pt	35652 00	35514 91 35691 91	35513 83 pt 35514 91 35691 91
35563 09	35513 09	35513 59 pt	35596 05	35596 05		35599 82	35599 82	35595 62 pt	35674 01	35674 01	35674 11 pt
35563 11	35513 11	35513 13	35596 07	35596 07		35599 83	35599 83	35595 98 pt	35674 02	35674 02	35674 17
35563 12	35513 12	35513 23 pt 35513 59 pt	35596 09	35596 09		35599 85	35599 85	35595 62 pt 35595 98 pt	35674 03	35674 03	35674 19 pt 35674 31 pt
35563 14	35513 14	35513 59 pt	35596 11	35596 11		35599 86	35599 86	35595 98 pt	35674 04	35674 04	35674 11 pt 35674 19 pt 35674 31 pt
35563 15	35513 15	35513 29 35513 59 pt	35596 13	35596 13		35599 88	36362 74	36362 74	35675 01	35675 01	35675 51
35563 21	35513 21	35513 83 pt	35596 15	35596 15		35599 89	36362 75	36362 75	35675 02	35675 02	35675 59
35591 01	35591 01	35591 00 pt	35596 17	35596 17		35599 90	36362 85	36362 85	35675 03	35675 03	35675 59
35591 03	35591 03		35596 19	35596 19		35599 92	35599 92	35595 98 pt	35675 11	35675 11	35675 91
35591 05	35591 05		35596 21	35596 21		35599 93	35599 93		35675 12	35675 12	
35591 07	35591 07	35591 00 pt	35596 23	35596 23		35599 94	35599 94		35676 00	35676 00	35672 00 pt
		35698 33	35596 25	35596 25		35599 95	35599 95		35676 01	35676 01	35672 11
			35596 27	35596 27		35599 96	35599 96				
			35596 29	35596 29		35599 97	35599 97				
			35596 31	35596 31							
			35596 33	35596 33							
			35596 35	35596 35							
			35596 37	35596 37							
			35596 39	35596 39							
			35596 41	35596 41							
			35596 43	35596 43							
			35596 45	35596 45							
			35596 47	35596 47							
			35596 49	35596 49							
			35596 51	35596 51							
			35597 01	35494 01	35494 01	35599 83	35599 83	35595 98 pt	35674 01	35674 01	35674 11 pt
			35597 02	35494 03	35494 03	35599 85	35599 85	35595 62 pt 35595 98 pt	35674 02	35674 02	35674 17
			35597 03	35494 05	35494 05	35599 88	36362 74	36362 74	35674 03	35674 03	35674 19 pt
			35597 04	35494 07	35494 07	35599 89	36362 75	36362 75	35674 04	35674 04	35674 31 pt
			35597 05	35494 09	35494 09	35599 90	36362 85	36362 85	35675 01	35675 01	35675 51
			35597 09	35494 11	35494 17 35494 19 pt	35599 92	35599 92	35595 98 pt	35675 02	35675 02	35675 59
			35597 11	35494 13	35494 19 pt	35599 93	35599 93		35675 03	35675 03	
			35597 11	35494 13	35494 19 pt	35599 94	35599 94		35675 11	35675 11	35675 91
			35599 01	35599 01	35595 11	35599 95	35599 95		35675 12	35675 12	
			35599 03	35599 03	35599 03	35599 96	35599 96		35676 00	35676 00	35672 00 pt
			35599 05	35599 05	35595 21	35599 97	35599 97		35676 01	35676 01	35672 11
			35599 07	35599 07	35599 07						
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			35599 11	35599 11	35599 11						

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35676 03	35676 03	35672 61	35752 00	35733 40	35734 30 pt 35735 51 pt	35892 99	35892 99	35892 93 pt	35963 05	35763 05	35760 63
35676 04	35676 04	35672 00 pt	35771 00	35732 30	35732 00 pt 35732 61	35893 01	35893 01	35893 11	35963 09	35763 09	35760 84
35676 05	35676 05	35672 41 pt	35772 00	35733 30	35734 30 pt 35735 51 pt	35893 08	35893 08	35893 98	36122 02	36122 02	36122 00
35676 06	35676 06	35672 00 pt		35733 60	35734 30 pt 35735 51 pt	35893 09	35893 09		36122 04	36122 04	
35676 17	35676 17	35672 41 pt				35921 01	35921 01	35921 11	36122 06	36122 06	
35676 19	35676 19					35921 02	35921 02	35921 13	36122 14	36122 14	
35681 11	35681 11	35681 15	35781 00	35743 00	35743 00	35921 03	35921 03	35921 71	36122 16	36122 16	
35681 13	35681 13		35782 00	35744 00	35744 00	35921 05	35921 05	35921 72	36122 19	36122 19	
35683 36	35683 36	35683 99 pt	35783 00	35745 00	35745 10 35745 31	35922 01	35922 01	35922 21	36122 21	36122 21	
35683 93	35683 93		3579A 00	3579A 00	3579A 20 3579A 40	35922 02	35922 02	35922 23	36122 23	36122 23	
35683 95	35683 95				3579A 41 3579A 44	35922 03	35922 03	35922 51	36122 28	36122 28	
35683 98	35683 98	35683 91 35683 99 pt			3579A 50 3579A 55	35922 04	35922 04	35922 53	36122 29	36122 29	
35692 00	35692 00	35694 00 35695 00 35696 00	35820 35	35820 35	35820 24	35922 05	35922 05	35922 55	36123 01	36123 01	36123 00 pt
35693 04	35693 04	35693 01 pt 35693 02 pt 35693 03 pt	35820 36	35820 36		35922 06	35922 06	35922 57	36123 02	36123 02	
35693 05	35693 05	35693 01 pt 35693 02 pt 35693 03 pt	35856 00	35856 00	35856 11 35856 30	35922 09	35922 09	35922 59	36123 04	36123 04	
35693 06	35693 06	35693 01 pt 35693 02 pt 35693 03 pt	35859 05	35859 05	35859 09	35923 01	35923 01	35923 61	36123 05	36123 05	
35697 00	35697 00	35699 97 pt	35859 07	35859 07		35923 02	35923 02	35923 63	36123 06	36123 06	
35698 01	35698 01	35699 31	3585D 10	3585B 10	3585B 10	35932 00	35998 00	35998 00	36123 07	36123 07	
35698 02	35698 02		3585D 20	3585B 20	3585B 20	35933 00	35999 00	35999 00	36123 11	36123 11	
35698 03	35698 03	35699 32	3585D 30	3585B 30	3585B 30	35941 10	35619 00	35617 00 35618 00	36126 01	36126 01	36125 00 pt
35698 04	35698 04		3585D 40	3585B 40	3585B 40	35941 20	35631 50	35631 40 pt	36126 02	36126 02	
35698 05	35698 05	35699 33	3585D 50	3585B 50	3585B 50	35942 10	3561D 00	3561A 00 3561B 00	36126 03	36126 03	
35698 06	35698 06		3585D 60	3585B 60	3585B 60	35942 20	35631 60	35631 40 pt	36126 04	36126 04	
35698 07	35698 07	35699 35	3585D 70	3585B 70	3585B 70	35961 01	35761 01	35760 13	36126 05	36126 05	
35698 08	35698 08		3585D 80	3585B 72	3585B 72 36994 07	35961 03	35761 03	35760 15	36126 09	36126 09	
35698 11	35698 11	35699 36	3585D 90	35860 89	35860 21 35860 41 35860 88	35961 05	35761 05	35760 21	36127 11	36127 11	36127 00
35698 12	35698 12		35892 03	35892 03	35892 01 pt	35961 07	35761 07	35760 23	36127 31	36127 31	
35698 13	35698 13	35699 41	35892 04	35892 04	35892 02 pt	35961 09	35761 09	35760 24	36127 78	36127 78	
35698 14	35698 14		35892 05	35892 05		35961 11	35761 11	35760 26	36128 10	36128 10	36138 00 pt
35698 15	35698 15	35699 43	35892 06	35892 06	35892 01 pt 35892 02 pt	35961 13	35761 13	35760 28	36128 94	36128 94	36249 98
35698 16	35698 16		35892 07	35892 07	35892 93 pt	35961 15	35761 15	35760 22	36129 01	36129 01	36129 11
35698 17	35698 17	35699 45	35892 26	35892 26	35892 25 35892 28	35961 17	35761 17	35760 30	36129 05	36129 05	36291 35
35698 18	35698 18		35892 27	35892 27	35892 93 pt	35962 01	35762 01	35760 32	36129 09	36129 09	36291 98 pt
35698 21	35698 21	35699 51	35892 06	35892 06	35892 01 pt 35892 02 pt	35962 03	35762 03	35760 33	36129 09	36129 09	36291 09
35698 22	35698 22		35892 07	35892 07	35892 93 pt	35962 05	35762 05	35760 36	36129 10	36129 10	36291 09
35698 23	35698 23	35699 61	35892 04	35892 04	35892 02 pt	35962 07	35762 07	35760 37 pt	36129 11	36129 11	36291 01
35698 24	35698 24		35892 05	35892 05		35962 09	35762 09	35760 41	36129 12	36129 12	36291 31
35698 25	35698 25	35699 71	35892 26	35892 26	35892 25 35892 28	35962 11	35762 11	35760 45	36129 13	36129 13	36291 31
35698 26	35698 26		35892 27	35892 27	35892 93 pt	35962 13	35762 13	35760 52	36129 14	36129 14	36291 31
35698 27	35698 27	35699 73	35892 43	35892 43	35892 61 35892 89 pt	35962 15	35762 15	35760 53	36129 15	36129 15	36291 31
35698 28	35698 28		35892 44	35892 44	35892 89 pt	35962 17	35762 17	35760 57 pt	36129 16	36129 16	36291 31
35698 31	35698 31	35699 74	35892 45	35892 45	35892 93 pt	35962 19	35762 19	35760 61	36129 17	36129 17	36291 31
35698 32	35698 32		35892 46	35892 46		35963 01	35763 01	35760 61	36129 18	36129 18	36291 31
35698 35	35698 35	35699 97 pt	35892 47	35892 47		35963 03	35763 03	35760 61	36129 19	36129 19	36291 31
35698 36	35698 36		35892 48	35892 48		35963 05	35763 05	35760 61	36129 20	36129 20	36291 31
35698 48	35698 48		35892 49	35892 49		35963 07	35763 07	35760 61	36129 21	36129 21	36291 31
35711 00	35731 00	35731 00	35892 77	35892 77	35892 84	35963 10	36330 10	36330 10	36331 00	36331 00	
	36629 43	36629 00 pt	35892 78	35892 78		35963 12	36330 12	36330 12	36333 11	36333 11	
35712 00	35733 05	35734 20	35892 79	35892 79		35963 14	36330 14	36330 14	36333 15	36333 15	
		35735 41	35892 80	35892 80	35892 93 pt	35963 16	36330 16	36330 16	36333 71	36333 71	
35721 00	35732 10	35732 00 pt	35892 85	35892 85	35892 86	35963 18	36330 18	36330 18	36333 95	36333 95	
			35892 87	35892 87		35963 20	36330 20	36330 20	36334 19	36334 19	
35722 00	35733 10	35734 30 pt	35892 88	35892 88	35892 88	35963 22	36334 22	36334 22	36349 18	36349 18	
		35735 51 pt	35892 91	35892 91	35892 93 pt	35963 24	36334 24	36334 24	36349 88	36349 88	
						35963 26	36334 26	36334 26	36349 89	36349 89	

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1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published
36395 10	36361 21 36395 30	36361 21 36394 00 pt 36399 60	36920 05— Con.	36920 05— Con.	36920 10 pt —Con. 36920 82 pt 36920 92 pt	37112 02— Con.	37112 02— Con.	37112 23 pt —Con. 37112 26 pt	37131 07	37131 07	37131 60 pt
36395 20	36361 84 36395 40	36361 84 36394 00 pt 36399 91 36399 93	36920 07	36920 07	36920 10 pt 36920 70 pt 36920 82 pt 36920 92 pt	37112 03	37112 03	37112 11 pt 37112 13 pt	37131 11	37131 40	37131 40
36411 00	36410 10	36410 20 36410 55 36410 63	36920 09	36920 09	36920 95	37112 04	37112 04	37112 11 pt 37112 13 pt 37112 15 pt	37131 13	37131 13	37131 42 37131 46
36412 00	36994 22	36994 11 36994 21	36941 01	36941 01	36941 11	37112 05	37112 05	37112 11 pt 37112 13 pt	37131 15	37131 48	37131 48
36489 12	36489 12	36489 11 pt 36489 19 pt	36941 03	36941 03	36941 31	37112 06	37112 06	37112 11 pt 37112 13 pt 37112 15 pt	37131 16	37131 50	37131 50
36489 16	36489 16	36489 11 pt	36941 04	36941 04	36941 35				37131 17	37131 52	37131 52
36489 17	36489 17	36489 19 pt	36942 01	36942 01	36942 14 36942 28 pt	37112 07	37112 07	37112 11 pt 37112 13 pt 37112 15 pt	37131 21	37131 37	37131 37
36520 00	36520 00	36521 00 36521 19	36942 02	36942 02	36942 28 pt	37112 08	37112 08	37112 23 pt 37112 25 pt 37112 26 pt	37131 43	37131 30	37131 30
36520 01	36520 01	36521 01 pt 36521 02 pt	36942 03	36942 03	36942 27 36942 28 pt	37112 09	37112 09	37112 11 pt 37112 13 pt 37112 15 pt	37131 49	37131 49	37131 12 pt 37131 25
36520 03	36520 03	36521 01 pt 36521 02 pt	36942 04	36942 04	36942 37 36942 41 36942 42	37112 10	37112 10	37112 11 pt 37112 13 pt 37112 15 pt	37131 53	37131 33	37131 33
36520 05	36520 05	36521 03 36521 04	36943 01	36943 01	36943 11 36943 42 pt	37112 11	37112 11	37112 11 pt 37112 13 pt 37112 15 pt	37131 55	37131 34	37131 34
36520 07	36520 07	36521 05	36943 02	36943 02	36943 42 pt	37112 12	37112 12	37112 23 pt 37112 25 pt 37112 26 pt	37131 57	37131 54	37131 54
36520 09	36520 09		36943 03	36943 03	36943 41 36943 42 pt	37112 13	37112 13	37112 23 pt 37112 25 pt 37112 26 pt	37131 61	37131 36	37131 36
36520 11	36520 11	36521 12 36521 15	36943 04	36943 04	36943 41 36943 42 pt	37112 14	37112 14	37112 23 pt 37112 25 pt 37112 26 pt	37132 02	37132 02	37132 71 37132 75
36520 19	36520 19	36521 11 36521 13 36521 14 36521 16	36947 04 36947 05	36947 04 36947 05	36947 03	37112 15	37112 15	37112 23 pt 37112 25 pt 37112 26 pt	37132 03	37132 03	37132 98 pt
36613 00	35732 50 36612 20	35732 00 pt 36612 00 pt	36949 07	36949 07	36949 09 pt	37112 16	37112 16	37112 23 pt 37112 25 pt 37112 26 pt	37132 05	37132 05	
36614 00	36612 40	36612 00 pt	36949 11	36949 11	36949 02	37112 17	37112 17	37112 23 pt 37112 25 pt 37112 26 pt	37132 06	37132 06	
36631 00	36621 00	36621 00 36629 41	36949 12	36949 12	36949 03 36949 04	37112 18	37112 18	37112 23 pt 37112 25 pt 37112 26 pt	37132 07	37132 07	
36632 00	36622 00	36622 00	36949 13	36949 13	36949 05 36949 06	37112 19	37112 19	37112 23 pt 37112 25 pt 37112 26 pt	37132 17	37132 17	
36691 00	36624 00	36624 00	36949 19	36949 19	36949 09 pt	37112 20	37112 20	37112 23 pt 37112 25 pt 37112 26 pt	37132 18	37132 18	
36692 00	36626 00	36626 00	36950 00	35732 20 36792 00	35732 00 pt 36792 00	37112 21	37112 21	37112 23 pt 37112 25 pt 37112 26 pt	37132 21	37132 21	
36693 00	36628 00	36628 00	36950 01	35732 20 36792 00	35732 00 pt 36792 00	37112 22	37112 22	37112 23 pt 37112 25 pt 37112 26 pt	37132 22	37132 22	
36714 00	36714 00	36711 00 36712 00	36992 00	36629 20	36629 00 pt	37112 23	37112 23	37112 23 pt 37112 25 pt 37112 26 pt	37142 48	37142 48	37142 03
36715 00	36799 10	36799 00 pt	36995 00	36629 30	36629 00 pt	37112 24	37112 24	37112 23 pt 37112 25 pt 37112 26 pt	37142 49	37142 49	37142 04
36720 00	36797 00	36797 00	36997 00	35497 65 36629 47	35497 65 36629 00 pt	37112 25	37112 25	37112 23 pt 37112 25 pt 37112 26 pt	37142 49	37142 49	37142 05
36799 20	36799 20	36629 00 pt 36629 42	36998 01	36994 51	36994 51	37112 26	37112 26	37112 23 pt 37112 25 pt 37112 26 pt	37144 09	37144 09	37144 11
36799 30	36799 30	36799 00 pt	36998 02	36994 71	36994 71	37112 27	37112 27	37112 23 pt 37112 25 pt 37112 26 pt	37146 03	37146 03	37146 01
36913 17	36913 17	36913 15 36913 16	36998 03	36994 72	36994 96 pt	37112 28	37112 28	37112 23 pt 37112 25 pt 37112 26 pt	37146 49	37146 49	37146 19
36914 25	36914 25	36914 21 36914 29	36998 04	36994 82	36994 82	37112 29	37112 29	37112 23 pt 37112 25 pt 37112 26 pt	37146 49	37146 49	37146 21
36915 01	36915 01	36915 72 36915 75	36998 05	36994 83	36994 83	37112 30	37112 30	37112 23 pt 37112 25 pt 37112 26 pt	37148 03	37148 03	37148 04
36915 02	36915 02	36915 85	36998 07	36994 85	36994 85	37112 31	37112 31	37112 23 pt 37112 25 pt 37112 26 pt	37148 27	37148 27	37148 29
36920 01	36920 01	36920 10 pt 36920 70 pt 36920 82 pt	36998 19	36994 97	36994 81 36994 96 pt	37112 32	37112 32	37112 23 pt 37112 25 pt 37112 26 pt	37148 27	37148 27	37148 31
36920 03	36920 03	36920 70 pt 36920 82 pt	37112 01	37112 01	37112 11 pt 37112 13 pt 37112 15 pt	37112 33	37112 33	37112 23 pt 37112 25 pt 37112 26 pt	37149 20	37149 20	37149 21
36920 04	36920 04	36920 70 pt 36920 82 pt	37112 02	37112 02	37112 23 pt 37112 25 pt 37112 26 pt	37112 34	37112 34	37112 23 pt 37112 25 pt 37112 26 pt	37149 39	37149 39	37149 14
36920 05	36920 05	36920 10 pt 36920 70 pt	37112 03	37112 03	37112 23 pt 37112 25 pt 37112 26 pt	37112 35	37112 35	37112 23 pt 37112 25 pt 37112 26 pt	37149 49	37149 49	37149 29 pt

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1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	1987 published	1987 collected	1982 published	
3714A 01	3714A 01	37143 31	37322 21—Con.	37322 21—Con.	37322 40—Con. 37322 49	37433 03	37433 62	37433 62	38121 00	38111 00	38111 00	
3714A 02	3714A 02	37143 21				37433 04	37433 69	37433 69	38122 00	36625 30	36625 00 pt 36629 44	
3714A 03	3714A 03	37143 23	37322 23	37322 23	37322 47	37433 11	37433 71	37433 71	38210 10	38112 00	38112 00	
3714A 04	3714A 04	37143 26	37322 25	37322 25	37322 48	37433 12	37433 12	37433 79	38210 20	38113 20	38113 00 pt	
3714A 05	3714A 05	37143 49 pt	37322 27	37322 27	37322 55 pt	37433 13	37433 13		38244 00	38244 00	38244 11 38244 21 38244 31 38244 99	
3714A 06			37322 28	37322 28		37433 14	37433 14					
3714A 07	3714A 07	37143 44	37322 29	37322 29	37322 53 37322 55 pt 37322 61	37511 01	37511 11	37511 11	38260 00	38326 00	38326 00	
3714A 08	3714A 08	37143 49 pt				37511 02	37511 21	37511 21	38271 00	38324 00	38324 00	
3714A 09	3714A 09	37143 46	37323 03	37323 03	37323 11 pt 37323 30	37511 03	37511 31	37511 31				
3714A 10	3714A 10	37143 47	37323 05	37323 05	37323 11 pt 37323 35	37511 04	37511 42	37511 42	38272 00	38325 30	38325 00	
3714A 11	3714A 11	37143 48				37511 05	37511 44	37511 44				
3714A 12	3714A 12	37143 49 pt	37323 07	37323 07	37323 11 pt 37323 50	37511 06	37511 51	37511 51	38295 10	38293 00	38293 00	
3714A 13						37511 09	37511 59	37511 59	38295 20	36625 20	36625 00 pt	
3714A 19	3714A 19		37323 09	37323 09	37323 11 pt 37323 54	37511 10	37511 10	37511 71	38296 00	38113 10	38113 00 pt	
37151 00	37151 00	37151 10 37151 50				37511 12	37511 12		38411 42	38411 42	38411 41 38411 45 38411 46	
37152 01	37152 01	37152 00	37323 13	37323 13	37323 11 pt 37323 56	37511 13	37511 13					
37152 02			37323 15	37323 15	37323 11 pt 37323 58	37511 14	37511 14		38411 72	38411 72	38411 71 pt	
37211 00	37211 00	37211 21 37211 23 37211 28	37323 17	37323 17	37323 11 pt 37323 70 37323 75	37512 01	37512 01	37512 14 37512 17	38411 85	38411 85	38411 82 38411 83	
37244 01	37244 01	37244 13				37512 06	37512 06	37512 53	38411 87	38411 87	38411 84 pt	
37244 02			37323 19	37323 19	37323 00 pt	37512 07	37512 07		38411 97	38411 97	38411 98 pt	
37244 05	37244 05	37244 53		37324 01	37324 01	37324 10 37324 15	37612 01	37612 25	37612 25			
37244 06						37612 02	37612 02	37612 35 37612 45	38411 99	38411 99	38411 71 pt 38411 84 pt 38411 98 pt	
37311 01	37311 01	37311 11 pt 37311 21		37324 03	37324 03	37324 18 pt 37324 20 pt 37324 25 pt	37614 01	37614 13	37614 13	38421 01	38421 01	38421 99 pt
37311 02	37311 02	37311 11 pt 37311 31		37324 05	37324 05	37324 18 pt 37324 20 pt 37324 25 pt	37614 02	37614 02	37614 15 37614 17	38421 02	38421 02	38421 35 pt
37311 03	37311 03	37311 11 pt 37311 41		37324 07	37324 07	37324 18 pt 37324 20 pt 37324 25 pt	37615 01	37615 11	37615 11	38421 03	38421 03	38421 99 pt
37311 04	37311 04	37311 11 pt 37311 51				37615 02	37615 13	37615 13	38421 04	38421 04	38421 11 pt	
37311 05	37311 05	37311 11 pt 37311 61		37324 09	37324 09	37324 18 pt 37324 20 pt 37324 25 pt	37615 03	37615 03	37615 15 37615 23	38421 05	38421 41	38421 41
37311 06	37311 06	37311 81 pt				37615 23			38421 06	38421 38	38421 38	
37311 07	37311 75	37311 75	37327 01	37327 01	37327 22 37327 25 pt 37327 32 37327 35 pt 37327 38 pt	37922 61	37922 61	37922 59	38421 07	38421 71	38421 71	
37311 09	37311 09	37311 11 pt 37311 81 pt		37327 03	37327 03	37327 25 pt 37327 28 pt 37327 35 pt 37327 38 pt	37922 63	37922 63		38421 08	38421 82	38421 82
37313 21	37313 21	37313 98 pt				37922 69	37922 69		38421 09	38421 81	38421 81	
37313 29	37313 29	37313 10 37313 12 37313 14 37313 98 pt		37327 05	37327 05	37327 28 pt 37327 38 pt	37950 01	37950 01	37950 11 37950 15			
37316 01	37316 01	37316 13 37316 53	37327 07	37327 07	37327 28 pt 37327 38 pt	37996 01	37996 30	37996 30	38421 10	38421 45	38421 45	
37316 02	37316 02	37316 19 37316 59	37327 09	37327 09	37327 28 pt 37327 38 pt	37996 02	37996 32	37996 32	38421 12	38421 12	38421 99 pt	
37322 01	37322 01	37322 03 37322 04 37322 06 37322 08	37327 11	37327 11	37327 41	37996 03	37996 34	37996 34	38421 37	38421 37	38421 33 38421 34	
37322 02	37322 02	37322 11	37327 19	37327 19	37327 42 37327 49	37996 04	37996 36	37996 36				
37322 05	37322 05	37322 19 pt	37328 00	37328 00	37328 11 37328 21	37996 08	37996 08	37996 39	38421 91	38421 91	38421 99 pt	
37322 07						37996 09	37996 09		38421 97	38421 97	38421 15 38421 99 pt	
37322 09	37322 09	37322 15	37431 11	37431 72	37431 72	37999 01	37999 01	37999 92				
37322 11	37322 11	37322 19 pt	37431 12	37431 12	37431 79	37999 02	37999 02	37994 94	38421 98	38421 98	38421 11 pt 38421 35 pt 38421 99 pt	
37322 13	37322 13	37322 17 37322 19 pt	37431 15	37431 15		37999 03	37999 03	37998 62				
37322 21	37322 21	37322 40 37322 42 37322 44	37433 01	37433 41	37433 41	37999 04	37999 04	37998 64	38423 21	38423 21	38423 31	
			37433 02	37433 61	37433 61	37999 05	37999 05	37998 80	38423 22	38423 22		
						37999 06	37999 06	37998 53	38423 23	38423 23		
						37999 19	37999 19	37998 35 37998 51 37998 82	38423 24	38423 24		
								37998 84 37998 86 37998 90				
									38511 18	38511 18	38511 17	
									38511 19	38511 19		
									38517 04	38517 04	38517 09	
									38517 05	38517 05		

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38517 04— Con.	38517 04— Con.	38517 09— Con.	38731 06	38731 06	38737 01	39153 11	39153 11	39151 13 pt
38517 06	38517 06		38731 07	38731 07	38737 02 38737 03	39153 12	39153 12	39151 31 pt
38517 07	38517 07		38731 11	38731 11	38737 19	39153 21	39153 21	39151 41
38517 10	38517 10					39153 31	39153 31	39151 51 pt
38517 11	38517 11		38731 13	38731 13	38736 39	39154 00	39154 11	39151 13 pt 39151 31 pt 39151 51 pt
38611 11	38611 11	38611 12 38611 14	38732 01	38732 01	38732 10 38732 22	39314 24 39314 25	39314 24 39314 25	39314 23
38611 69	38611 69	38611 67 38611 68	38732 02	38732 02	38732 14 38732 24	39443 46	39443 46	39443 44 39443 45
38611 98	38611 98	38611 43 38611 99	38732 03	38732 03	38732 16 38732 26	39443 47 39443 98	39443 47 39443 98	39443 99
38613 17	38613 17	38613 27 38613 46	38732 09	38732 09	38732 18 38732 20 38732 29 38732 30	39447 16	36629 46	36629 00 pt
38613 89	38613 89	38613 98	39113 11	39113 11	39112 11 pt	39493 01	39493 01	39494 62
38613 97	38613 97	38613 61				39493 02	39493 02	39494 63
38615 01	38615 01	38615 11 38615 17 38615 32 38615 37	39113 21	39113 21	39112 21 pt	39495 05	39495 05	39495 99 pt
			39113 31	39113 31	39112 31 pt	39495 72	39495 72	39495 78 39495 79
			39113 41	39113 41	39112 41 pt	39495 81 39495 88 39495 89	39495 81 39495 88 39495 89	39495 99 pt
38615 02	38615 02	38615 63	39113 98	39113 98	39112 98 pt	39495 92	39495 92	39495 90 pt
38615 03	38615 03	38615 73 38615 74	39114 11	39114 11	39112 11 pt	39495 93	39495 93	39495 91 pt
38615 04	38615 04	38615 75	39114 21	39114 21	39112 21 pt	39495 96	39495 96	39495 90 pt 39495 91 pt
38615 05	38615 05	38615 57 38615 64 38615 65 38615 76 38615 81	39114 31	39114 31	39112 31 pt	39495 98	39495 98	39495 99 pt
			39114 41	39114 41	39112 41 pt	39496 01	39496 01	39494 65
38619 00	38619 00	38619 41 38619 43 38619 45	39114 51 39114 61 39114 71	39114 51 39114 61 39114 71	39112 98	39496 02	39496 02	39494 68
38731 01	38731 01	38734 11 38734 12 38736 11	39141 41 39141 43 39141 69	39141 41 39141 43 39141 69	39141 66	39496 03 39496 04	39496 03 39496 04	39494 70
38731 02	38731 02	38734 22 pt 38736 13 pt	39142 35	39142 35	39142 34 39142 36	39496 05	39496 05	39494 69
38731 03	38731 03	38734 21 38734 22 pt 38736 12 38736 13 pt	39142 41 39142 43	39142 41 39142 43	39142 61	39523 00	39523 00	39521 00 39522 15
38731 05	38731 05	38736 31 38736 32 38736 33	39142 55	39142 55	39142 54 39142 56	39524 13	39524 13	39522 13
			39142 69	39142 69	39142 61 pt	39524 19	39524 19	39522 19
						39610 65	39610 65	39610 72
						39998 21	39620 21	39620 21



# PUBLICATION PROGRAM

## 1987 CENSUS OF MANUFACTURES

Publications of the 1987 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

### Preliminary Reports

#### Industry series—83 reports (MC87-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the U.S. and States are released in one report.

### Final Reports

#### Industry series—83 reports (MC87-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries ("dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

#### Geographic area series—51 reports (MC87-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MSA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

#### Subject series—7 reports (MC87-S-1 to -7)

Each of the seven reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, type of organization, water use in manufacturing, textile machinery in place, distribution of sales by class of customer, manufacturers' shipments to the Federal Government, and a general national-level summary.

#### Reference series—1 report (MC87-R-1)

The Numerical List of Manufactured and Mineral Products includes a description of the principal products and services published in the 1987 Censuses of Manufactures and Mineral Industries.

#### Location of Manufacturing Plants—1 report (MC87-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and zip codes for each State. (This report is available only on magnetic tape and CD-ROM.)

#### Analytical Reports—3 reports (AR87-1 to -3)

#### Exports From Manufacturing Establishments (AR87-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

#### Selected Characteristics of Manufacturing Establishments That Export (AR87-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

#### Indexes of Production (AR87-3)

The indexes presented in this report are designed to measure the change in physical output of each manufacturing and mineral industry between 1982 and 1987.

### MICROFICHE

Every final published report in the 1987 Census of Manufactures will be available on microfiche.

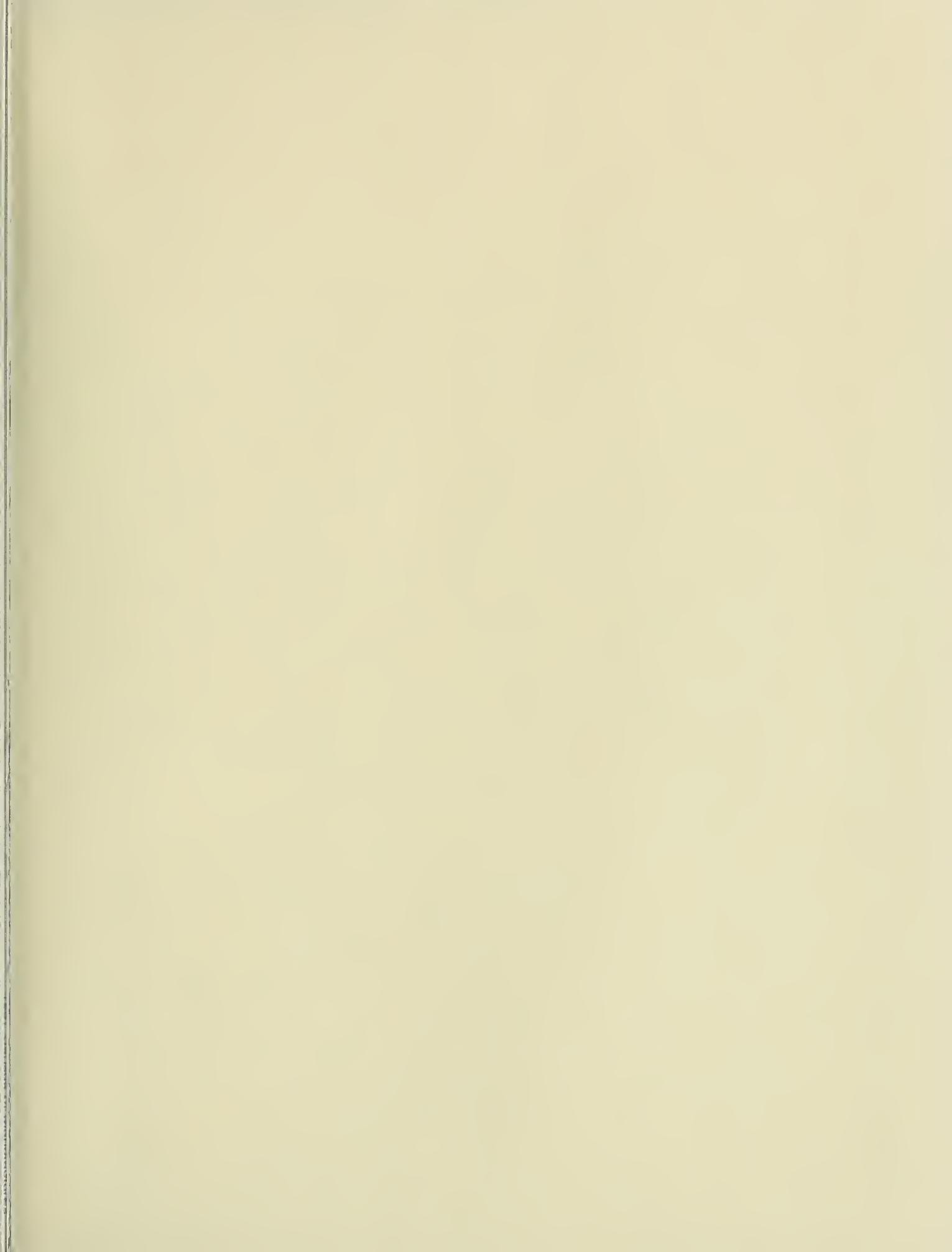
### PUBLIC-USE COMPUTER TAPES AND COMPACT DISCS

Data from the final industry series, geographic area series, and the Location of Manufacturing Plants report will be available on public-use computer tapes and compact discs-read only memory (CD-ROM). These tapes will provide the same information found in the final reports. Computerized data products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, DC 20233.

### OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, transportation, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1987 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.











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